





R44 JAPAN



国 土 交 通 省

追 加 型 式 設 計 承 認 書

第STC-382-OSA号

1 航 空 機 の 種 類 回転翼航空機

2 航 空 機 の 型 式 ロビンソン式 R44及びR44 II型

3 航空機の耐空類別 回転翼航空機 普通N

4 追加型式設計の内容 The installation of Quick Release Mounting Provisions and Quick Release Cargo Basket (P/N:90601-01)

5 設計者氏名又は名称 Aero Design Ltd.

6 設 計 者 住 所 9888A Malaspina Road, Powell River, BC, Canada, V8A 0G3

7 備 考

適用基準 : ロビンソン式 R44及びR44 II型の型式証明第47号により適用される基準

図 面 : 90601

飛行規程 : Aero Design Ltd.製 クイックリリースカーゴバスケット (P/N:90601-01)  
(平成 28年 2月 19日) 又は航空局が承認した最新版

整備手順書 : Instructions for Continued Airworthiness ICA906.91/906.92

作業区分 : 小改造

参 考 : 本STCは TCCA STC No.SH10-48 (Date of issuance : October 21, 2010  
Date amended : June 19, 2014) に準拠し承認するものである

8 上記の追加型式設計は、航空法（昭和27年法律第231号）第10条第4項の基準に適合するものであることを承認する。

大 阪 航 空 局 長



発行年月日 平成 28年 2月 19日

*Japan*  
*Ministry of Land, Infrastructure, Transport and Tourism*  
*Civil Aviation Bureau*

## Supplemental Type Certificate

Number **STC -382-OSA**

1	<i>Kind of Aircraft</i>	Rotorcraft
2	<i>Model of Aircraft</i>	ROBINSON R44, R44 II
3	<i>Airworthiness Category</i>	Rotorcraft, Normal Category
4	<i>Content of Supplemental Type Design</i>	The installation of Quick Release Mounting Provisions and Quick Release Cargo Basket (P/N:90601-01)
5	<i>Name or Title of Designer</i>	Aero Design Ltd.
6	<i>Address of Designer</i>	9888A Malaspina Road, Powell River, BC, Canada, V8A 0G3
7	<i>Remarks</i>	<div style="padding-left: 20px;"><i>Certification Basis</i> : Certification Basis specified on Japan Type Certificate Data Sheet No.47 for the above model of aircraft.  <i>Drawing</i> : 90601 <i>Flight Manual</i> : INSTALLATION of the AERO DESIGN QUICK RELEASE CARGO BASKET (P/N:90601-01) Revision Original ( 19. FEB. 2016 ) or later JCAB approved revision.  <i>Instructions for Continued Airworthiness</i> : Instructions for Continued Airworthiness ICA906.91/906.92  <i>Classification of Works</i> : Minor Alteration  <i>Reference</i> : The approval of this STC is based on TCCA STC No.SH10-48 (Date of issuance: October 21, 2010 Date amended: June 19, 2014).</div>
8	<i>This is to certify that the above mentioned Supplemental Type Design complies with the standards of Article 10 paragraph 4 of Civil Aeronautics Law of Japan.</i>	
<b>Takashi KATO</b> Director-General of Osaka Regional Civil Aviation Bureau		
<i>Date of issuance:</i> 19. FEB. 2016		

Note: This is a translation of Supplemental Type Certificate originally issued in Japanese and shall not be construed as an official text.

Jeff Clarke

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**From:** Masa [yagyu.sky@gmail.com]  
**Sent:** December 15, 2015 4:39 PM  
**To:** Jeff Clarke  
**Subject:** Re: Cargo Basket and Bearpaws

Hi Jeff,

I know you can not get JCAB approval for best paw. But we need it. Can you send it us ←

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2015/12/16 9:33 繆` Jeff Clarke <[jeff@aerodesign.ca](mailto:jeff@aerodesign.ca)> 繆。繆・繆繆:

Hi Masa,

We cannot supply bear paws with JCAB certification, that is why we put Clayton in contact with Marc Bellavance at Dart.

I will ask for a letter from Transport Canada for the basket installation.

Regards,

Jeff Clarke, P.Tech.(Eng.)  
Aero Design Ltd.

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**From:** Masa [<mailto:yagyu.sky@gmail.com>]  
**Sent:** December 15, 2015 3:57 PM  
**To:** Jeff Clarke  
**Subject:** Re: Cargo Basket and Bearpaws

Hi Jeff,

Even you are not approved by JCAB for bear paw,  
We need it. Can you put it together and send us please?

I understand for installation about cargo basket.

You don't need any inspection by aviation authority for each installation.

But as you know, JCAB is pain. They asked us to show official letters by Transport Canada which describe cargo basket is not required for inspection by Transport Canada. Because It has been tested and STC has been issued by Transport Canada. Off course new weight and balance must be done and logged when cargo basket is installed.

Could you ask Transport Canada to send this kind of letter to JCAB please?

I'm appreciate your help.

Thank you.

07/03/2016



Masa

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2015/12/16 4:45部イ縷・ /span>eff Clarke <[jeff@aerodesign.ca](mailto:jeff@aerodesign.ca)> 部コ縷ア部昂□らケ昂・縷晉ケ昂す  
部ア縷ッ:

Hello Masa,

With regards to your email from 13 December (below):

A certified mechanic installs the cargo basket and signs the log book. The basket can be installed or removed from the mounting provisions without tools, so it does not require a certified mechanic to sign for the installation, but they must prepare the weight and balance for both configurations (basket installed, basket removed). Transport Canada does not inspect the installation each time it is put on.

With regards to your emails from 14 December (below):

The attached invoice and wire transfer information was sent to Clayton on 03 December. The freight quote is to the airport in Osaka, you will have to arrange for pickup or transportation from there. It also does not include customs clearance into Japan. If you have a customs broker please provide that information so we can include it with the shipment.

We are not able to supply snow shoes (bear paws) with JCAB approval. We thought Dart Aerospace was going to supply them for you. Did they not start that process?

Regards,

Jeff Clarke, P.Tech.(Eng.)  
Aero Design Ltd.

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**From:** Masa [<mailto:yagyu.sky@gmail.com>]

**Sent:** December 13, 2015 2:16 PM

**To:** Jason Rekve

**Subject:** Re: Cargo Basket and Bearpaws

Hi Jason,

I want to ask something about your cargo basket.

You have STC approval from Transport Canada and FAA. So It means , If mechanic had certified license, who can install cargo basket and just sign aircraft log book or something without inspection from transport Canada?

We needs some kind of letters or something from Transport Canada to proof of this.

Because we can install Cargo basket. But we need inspection each time by JCAB for cargo basket installation.

Please ask Transport Canada to send official letters or something to JCAB please?

Thank you for your help.

Mass

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**From:** Masa [<mailto:yagyū.sky@gmail.com>]

**Sent:** December 14, 2015 1:13 PM

**To:** Jason Rekke

**Subject:** Re: Cargo Basket and Bearpaws

Hi Jason,

We'd like to order left side cargo basket and one set of ski shoes please.  
Could you sent them Advanced Air please?

Please let me know total price and bank information.

Masa

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<Aero Design Wire Transfer.doc>

<Inv471\_AdvancedAir.pdf>

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE		

WITH CARGO BASKET INSTALLED:  
VFR ONLY, VNE = 110 KIAS


01 PLACARD  
SCALE 1 : 1

#### NOTES


1. INSTALL PLACARD ON INSTRUMENT PANEL IN CLEAR VIEW OF PILOT.

2. PLACARD SPECIFICATIONS:

LINEWIDTH = 1/32"  
MIN. TEXT HEIGHT = 1/8"  
TEXT COLOUR = WHITE  
BACKGROUND COLOUR = BLACK

90691-01	01	PLACARD	12mm BROTHER TZ TAPE, TZE335, WHITE ON BLACK		
PART NO.	ITEM	DESCRIPTION	MATERIAL		
LIST OF MATERIALS					
THIS DRAWING CONTAINS INFORMATION AND DATA WHICH IS PROPRIETARY TO AERO DESIGN LTD. THIS DRAWING, OR ANY PORTION THEREOF, MAY NOT BE REPRODUCED, COPIED, OR DUPLICATED IN ANY MANNER, NOR USED FOR MANUFACTURING WITHOUT THE WRITTEN CONSENT OF AERO DESIGN LTD. BY ACCEPTING THIS DRAWING FOR REFERENCE, THE RECIPIENT AGREES TO HOLD AERO DESIGN LTD. HARMLESS FROM THE USE, OR MISUSE, OF THIS DRAWING OR THE INFORMATION CONTAINED THEREON.	APPROVALS DRAWN: JEFF CLARKE CHECKED: JASON REKVE		DATE 17 DEC 2015 17 DEC 2015		
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS                      ANGLES X.XXX ±0.010                      ±1/2" X.XX ±0.03 X.X ±0.1		 <b>AERO DESIGN LTD.</b> 9888A MALASPINA ROAD POWELL RIVER, BC, CANADA, V8A 0G3 TEL: 604.483.2376                      www.aerodesign.ca		
			ROBINSON R44, R44 II QUICK RELEASE CARGO BASKET PLACARD INSTALLATION - JAPAN		
	SCALE 1 : 1 SHEET 1 OF 1		DWG. SIZE <b>A4</b>	DWG. NO. <b>90691</b>	REV. <b>0</b>

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>INSTALLATION DOCUMENTS</b>		
90601	Quick Release Cargo Basket Installation	1
90691JP	Placard Installation (Japan)	0
ICA906.92	Instructions for Continued Airworthiness	2
FMS906.90	Flight Manual Supplement	1
FMS906.90JP	Flight Manual Supplement (Japan)	1
<b>FABRICATION DOCUMENTS</b>		
DCL906-12	Document Control List for Quick Release Cargo Basket Fabrication	1
90627JP	Placard (Japan)	1
<b>Note:</b> This DCL is the same as DCL906-2 Revision 1, with the addition of documents required by the Japanese Civil Aviation Bureau		
APPROVAL:	ORIGINAL DATE: 17 December 2015 REVISION DATE:	 <b>Aero Design Ltd.</b> 9888A Malaspina Road Powell River, BC, Canada, V8A 0G3 Tel: 604.483.2376 www.aerodesign.ca
	SHEET 1 OF 1	<b>Robinson R44, R44 II</b> <b>Quick Release Cargo Basket</b> <b>Installation (Japan)</b>
	<b>DCL906-2JP</b>	Rev. <b>0</b>





# Intra-Canada Air Waybill Lettre de transport aérien intérieure

Not all services and options available to all destinations.  
Certains services et options ne sont pas disponibles pour toutes les destinations.

Freight Fret G.S.T./H.S.T. TPS/T.V.H. P.S.T./O.S.T. T.V.P./T.V.Q. Other Autre Total

## 1 From Please print and press firmly. / Expéditeur Écrivez en caractères d'imprimerie. Appuyez fermement SVP.

Date 10/24/2015 Sender's FedEx Account Number 541312668  
N° de compte FedEx de l'expéditeur

Sender's Name JEFF CLARKÉ Phone 604 483 2376  
Nom de l'expéditeur Téléphone

Company AERO DESIGN LTD.  
Nom de la société

Address 9888A MALASPINA RD  
Adresse Dept./Floor/Service/Étage

Address  
Adresse

City POWELL RIVER Province BC Postal Code V8A 0G3  
Ville Code postal

## 2 Your Internal Reference Votre référence interne

First 24 characters will appear on invoice.  
Les 24 premiers caractères apparaîtront sur la facture.

## 3 To/Destinataire

Residential Delivery / Livraison résidentielle  
Recipient's Name JACK STAAL Phone 760 495 5227  
Nom de destinataire Téléphone

Company TRANSPORT CANADA  
Nom de la société

Address 1100 - 9700 JASPER AVE  
Adresse

Address  
Adresse

City EDMONTON Province AB Postal Code T5J 4E6  
Ville Code postal

## 4 Shipment Information/Informations sur l'envoi

Total Packages 1 Total Weight 3  
Nombre total Poids total  
Total Declared Value \$  
Valeur totale déclarée

## 5a Express Package Service/Service colis express

FedEx Priority Overnight FedEx First Overnight FedEx 2Day FedEx Economy  
FedEx Box and FedEx Tube not accepted. Boîte FedEx et Tube FedEx non acceptés.

## 5b Express Freight Service/Service fret express

FedEx 1Day Freight Booking Number/Numéro de réservation  
Call 1.866.744.7493 to book shipment/Composez le 1.866.744.7493 pour réserver de l'espace pour votre envoi.

## 6 Packaging/Emballage

\*Declared Value Limit \$100 CDN. / \*Limite de valeur déclarée de 100 \$CAN.

FedEx Envelope\* Enveloppe FedEx\* FedEx Pak\* Pak FedEx\* FedEx Box Boîte FedEx\* FedEx Tube Tube FedEx\* Other BOA  
Autre

Sender's Copy  
Copie expéditeur



Ship and track packages at fedex.ca  
Faites vos envois et leur suivi à fedex.ca

Questions? Visit fedex.ca

or call 1.800.GoFedEx 1.800.463.3339.

Des questions? Visitez fedex.ca

ou composez le 1.800.GoFedEx 1.800.463.3339.

## 7 Special Handling/Manutention spéciale

HOLD at FedEx Location

RETENIR à la succursale FedEx  
May not be in the same city. Not available for FedEx First Overnight/Peut être située dans une autre ville. Pas disponible pour FedEx First Overnight.

SATURDAY Delivery / Livraison le SAMEDI

Available to select locations. Not available for FedEx First Overnight, FedEx Economy, or FedEx 1Day Freight/Disponible à certains endroits. Pas disponible pour FedEx First Overnight, FedEx Economy, ou FedEx 1Day Freight.

Does this shipment contain dangerous goods? / Cet envoi contient-il des marchandises dangereuses?

No Yes  
Non Oui

Shipper's Declaration not required, Déclaration de l'expéditeur non requise.

Dry Ice / Dioxyde de carbone, solide  
9, UN 1845 x kg

DESCRIPTION

\*Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. On ne peut pas expédier des marchandises dangereuses (y compris la glace sèche) dans un emballage FedEx, ni les déposer dans une boîte à colis FedEx Express.

Cargo Aircraft Only  
Avion cargo uniquement

## 8 Payment Bill transportation charges to/ Paiement Facturer le transport à :

Enter FedEx Acct. No. or Credit Card No. below.  
Indiquer ci-dessous le n° de compte FedEx ou de la carte de crédit.

Sender / Expéditeur Recipient Destinataire Third Party Tierce partie Cash/Cheque Argent liquide/Chèque

FedEx Acct. No. 541312668  
Acct. No. in Section 1 will be billed. Les frais seront imputés au numéro de compte figurant à la rubrique 1.  
Credit Card No. N° de carte de crédit  
Credit Card Exp. Date Date d'expiration de la carte de crédit  
Credit Card Auth. Autorisation de carte de crédit

## 9 Sign to Authorize Delivery Without a Signature/Signer pour autoriser la livraison sans signature

Sender authorizes FedEx to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless FedEx from any claims resulting therefrom. L'expéditeur autorise FedEx à livrer le présent colis sans avoir obtenu de signature attestant de la livraison et libère FedEx de toute réclamation pouvant en résulter.

Sender's Signature  
Signature de l'expéditeur

OPTIONAL/FACULTATIF

## 10 Required Signature/Signature requise

Sender's signature and liability limitation / Signature de l'expéditeur et limite de responsabilité  
Use of this Air Waybill constitutes your agreement to all the terms and conditions on the back of this Air Waybill and in the current FedEx Service Guide, which may limit our liability for damage, loss, delay, shortage, misdelivery, misinformation, or failure to provide information in connection with your shipment. Features of service may vary from location to location. See the current FedEx Service Guide or call 1.800.GoFedEx 1.800.463.3339 for further information.  
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Sender's Signature  
Signature de l'expéditeur

PART 157259  
Rev. Date 12/10  
©1994-2010 FedEx  
PRINTED IN U.S.A. RDA

FedEx Tracking  
Number  
Numéro de suivi de FedEx

8068 5305 9821

Form ID No.  
N° du formulaire 0450

RETAIN THIS COPY FOR YOUR RECORDS. / CONSERVEZ CET EXEMPLAIRE POUR VOS DOSSIERS.

09/14



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**Your Obligations.** You warrant that each article in the shipment is properly described on this Air Waybill and is acceptable for transport by us, and that the shipment is properly marked, addressed and packed to ensure safe transportation with ordinary care in handling. You, the shipper, will always be primarily responsible for all charges, including transportation charges, and all duties, assessments, governmental penalties and fines, taxes and our legal fees and costs, related to this shipment. Further and without limiting the generality of the foregoing, you shall indemnify us and hold us harmless against all liabilities, losses, claims, damages, costs and expenses of any nature whatsoever, incurred as a consequence of your non-observance of any applicable laws, government regulations, orders or requirements.

### NOTICE CONCERNING LIMITATIONS OF LIABILITY

**Read Transport Notice.** Any carriage of your shipment by road may be subject to Federal and Provincial laws, regulations, orders or requirements which may govern and serve to limit our liability in respect of damage to, or loss, delay, shortage, misdelivery, nondelivery, misinformation or failure to provide information in connection with your shipment.

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**Right To Inspect.** Your shipment may, at our option or at the request of governmental authorities, be opened and inspected by us or such authorities at any time.

**Responsibility For Payment.** Even if you give us different payment instructions, you, the shipper, will always be primarily responsible for all charges, including transportation charges, and all duties, governmental penalties and fines, taxes, and our legal fees and costs, related to this shipment. You will also be responsible for any costs we may incur in returning your shipment to you or warehousing it pending disposition.

**Letter of Instruction.** If you do not complete all the documents required for carriage of your shipment or if the documents you submit are not appropriate for the services or destination requested, you hereby instruct us, where permitted by law, to complete, correct or replace the documents for you at your expense. However, we are not obligated to do so. If a substitute form of air waybill is needed to complete delivery of your shipment and we complete that document, the terms and conditions of this Air Waybill will continue to govern. We are not liable to you or any other person for our actions on your behalf under this provision.

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Q.S.T./ 1003974920

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**Définitions.** Sur la présente Lettre de transport aérien « nous », « notre » et « notre » désignent Federal Express Canada Ltd., ses commettants, filiales, succursales et sociétés affiliées ainsi que leurs employés, agents et entrepreneurs indépendants respectifs. « Vous » « votre » et « vôtres » désignent l'expéditeur, le destinataire ou réceptionnaire, leurs employés, commettants, agents et entrepreneurs indépendants. « Colis » désigne tout conteneur ou enveloppe que nous acceptons pour la livraison, y compris tout article que vous nous présentez et qui utilise nos systèmes automatisés, appareils de mesure, manifests ou lettres de transport. « Envoi » désigne tous les colis qui nous sont présentés et que nous acceptons de faire figurer sur une même Lettre de transport aérien. Le supplément pour livraison résidentielle s'applique aux envois livrés à une résidence ou à une entreprise exploitée à partir d'une résidence lorsque l'entrée principale n'est pas accessible au public. Veuillez consulter les Modalités du Guide des services de FedEx sur fedex.ca pour plus de détails.

**Accord sur les conditions.** En nous faisant parvenir votre envoi, vous acceptez, que vous sachiez ou non la première page de la présente Lettre de transport aérien, en votre propre nom et en tant qu'agent représentant toute autre personne ayant un intérêt dans cet envoi, toutes les conditions figurant sur la présente Lettre de transport aérien NON NEGOCIABLE, dans tout tarif en vigueur et dans le Guide des services de FedEx actuel (nous pouvons modifier, amender ou augmenter le Guide des services de FedEx actuel sans préavis), dont des exemplaires sont disponibles sur demande à l'une de nos succursales ou en téléphonant au 1.800.GoFedEx 1.800.463.3339. En cas de conflit entre cette Lettre de transport aérien et le tarif, le Guide des services de FedEx actuel, ou les conditions normales alors en vigueur, le tarif prévaudra (le Guide des services de FedEx actuel n'aura qu'une priorité secondaire). En outre, la version anglaise de la présente Lettre de transport aérien prévaudra sur toute traduction. NUL N'EST AUTORISÉ À CHANGER OU À MODIFIER LES CONDITIONS DE NOTRE ACCORD. La présente Lettre de transport aérien crée des droits et obligations entre nous lorsque l'envoi sera accepté : nous pourrions estampiller cette Lettre de transport aérien d'un numéro d'employé faisant office de signature de notre part.

**Vos obligations.** Vous garantissez que chaque article faisant partie de l'envoi est correctement décrit sur la présente Lettre de transport aérien, que nous pouvons accepter de le transporter, et que l'envoi est correctement estampillé, adressé et emballé en vue de garantir son transport en toute sécurité, dans des conditions de maintenance normales. Vous, l'expéditeur, serez toujours le principal responsable de tous les frais, y compris tous les frais de transport, et de tous les droits, taxes douanières, pénalités et amendes gouvernementales, taxes, ainsi que de nos honoraires d'avocats et de frais légaux relatifs à cet envoi. En outre, sans que cela limite la portée générale de ce qui précède, vous devrez nous tenir indemnes de toute responsabilité civile, perte, réclamation, poursuite en dommages et dépense découlant de votre négligence ou de nos, réglementations, ordonnances et exigences gouvernementales en vigueur.

### NOTIFICATION CONCERNANT LES LIMITES DE RESPONSABILITÉ

**Notification de transport routier.** Le transport routier de votre envoi peut être régi par des lois, réglementations, ordonnances ou exigences des gouvernements fédéral et provinciaux, lesquelles peuvent encadrer et limiter notre responsabilité à l'égard des dommages, pertes, retards, livraison incomplète, erreurs de livraison, absence de livraison, information fautive ou incapacité de fournir de l'information sur votre envoi.

**Limite de responsabilité.** AU CAS OÙ ELLE NE SERAIT PAS RÉGIE PAR LA LÉGISLATION, LA RÉGLEMENTATION, UNE ORDONNANCE OU TOUTE EXIGENCE FÉDÉRALE OU PROVINCIALE TELLE QUE DÉCRITE CI-DESSUS, NOTRE RESPONSABILITÉ MAXIMUM POUR PERTE, DOMMAGE, RETARD, ERREUR DE LIVRAISON, ABSENCE DE LIVRAISON, INFORMATION FAUTIVE, INCAPACITÉ DE FOURNIR DE L'INFORMATION OU NON-TRANSMISSION DE L'INFORMATION CONCERNANT VOTRE ENVOI, MÊME SI CELA EST CAUSÉ PAR NOTRE NÉGLIGENCE OU PAR NOTRE GROSSE NÉGLIGENCE, EST LIMITÉE PAR LA PRÉSENTE LETTRE DE TRANSPORT AÉRIEN À 100 \$CAN (OU PORTION CORRESPONDANTE) PAR ENVOI. À MOINS QUE VOUS NE DÉCLARÉZ UNE VALEUR SUPÉRIEURE COMME PRÉCISÉ CI-DESSUS SOUS RÉSERVE DES MONTANTS MAXIMUMS INDIQUÉS DANS LE GUIDE DES SERVICES DE FEDEX, NOUS N'OFFRONS AUCUNE GARANTIE NI ASSURANCE. MAIS VOUS POURRIEZ PAYER DES FRAIS SUPPLÉMENTAIRES POUR CHAQUE TRANCHE DE 100 \$CAN ADDITIONNELLE DE VALEUR DÉCLARÉE POUR LE TRANSPORT. SI VOUS DÉCLARÉZ UNE VALEUR DE TRANSPORT SUPÉRIEURE ET PAVEZ LESDITS FRAIS SUPPLÉMENTAIRES, NOTRE RESPONSABILITÉ MAXIMUM SERA ÉGALE AU MOINDRE DE VOTRE VALEUR DÉCLARÉE POUR LE TRANSPORT (SOUS RÉSERVE DES MONTANTS MAXIMUMS INDIQUÉS DANS LE GUIDE DES SERVICES DE FEDEX), DES FRAIS DE RÉPARATION DE L'ENVOI, DE LA VALEUR DÉPRÉCIEE, OU DES FRAIS DE REMPLACEMENT DU CONTENU.

**Limites de valeur déclarée.** On ne peut déclarer une valeur de transport supérieure à 1 000 \$ pour les envois contenant des articles de valeur extraordinaire. La valeur déclarée de transport la plus élevée que nous autorisons par lettre de transport aérien pour chaque envoi Enveloppe FedEx ou Pak FedEx est 100 \$. Veuillez consulter le Guide des services de FedEx actuel ainsi que tout tarif en vigueur pour plus d'explications sur les limites de valeur déclarée. Si vous envoyez plus d'un colis à l'aide de la présente Lettre de transport aérien, la valeur déclarée de transport pour chaque colis sera déterminée en divisant la valeur déclarée de transport totale par le nombre de colis dans l'envoi.

**Responsabilités exclues.** EN AUCUN CAS, NOUS NE SERONS RESPONSABLES DES DOMMAGES DIRECTS, FORTUITS, SPÉCIAUX OU INDIRECTS SUPÉRIEURS À LA VALEUR DÉCLARÉE DE TRANSPORT NI COMPTES, ENTRE AUTRES, LA PERTE DE REVENUS OU DE BÉNÉFICES, QUE NOUS AYONS OU NON EU CONNAISSANCE DE L'ÉVENTUELLE D'UN TEL DOMMAGE. Nous ne serons pas responsables de vos actes ou omissions, y compris, entre autres, toute déclaration de l'envoi inexacte, toute insuffisance d'emballage, de protection, d'estampillage ou d'indication d'adresse, ou tout acte ou omission du destinataire ou d'un tiers ayant un intérêt dans l'envoi. Nous ne serons pas responsables des dommages, pertes, erreurs de livraison, absence de livraison, information fautive, incapacité de fournir de l'information ou non-transmission de l'information concernant des envois d'espèces, devises ou autres articles prohibés. Nous ne serons pas responsables des pertes, dommages, retards, erreurs de livraison, absence de livraison, information fautive, incapacité de fournir de l'information ou non-transmission de l'information concernant votre envoi causés par des événements indépendants de notre volonté, y compris, entre autres, les cas de force majeure, dangers aériens, conditions météorologiques défavorables, actes d'ennemis publics, guerres, grèves, agitation civile ou actes ou omissions des autorités publiques (y compris les agents des douanes et de la santé) ayant l'autorité réelle ou apparente. VOUS DEVREZ COMMUNIQUER VOTRE-MÊME AVEC UN AGENT OU UN COURTIER D'ASSURANCE SI VOUS DESIREZ FAIRE ASSURER VOTRE ENVOI. NOUS NE FOURNISSEONS AUCUNE GARANTIE D'ASSURANCE.

**Inexistence de garantie.** Nous n'offrons aucune garantie, ni expresse, ni tacite.

**Réclamations.** TOUTES LES RÉCLAMATIONS DOIVENT ÊTRE EFFECTUÉES PAR ÉCRIT ET DANS LES DÉLAIS PRÉSCRITS, conformément aux lois, réglementations, ordonnances ou exigences gouvernementales en vigueur. POUR PLUS DE DÉTAILS, VOIR LE GUIDE DES SERVICES DE FEDEX ACTUEL ET TOUT TARIF EN VIGUEUR. Tout droit de réclamer des dommages-intérêts sera perdu si vous n'intentez pas cette réclamation dans les deux ans suivant la date où l'envoi a été livré ou aurait dû l'être. Rien ne nous oblige à remédier à une réclamation tant que les frais de transport n'ont pas été entièrement payés; le montant de la réclamation ne peut pas être déduit de ces frais. Si le destinataire accepte votre envoi sans noter l'existence d'un dommage sur le bordereau de livraison, nous considérerons que l'envoi lui a été remis en bon état. Pour que nous puissions traiter vos réclamations pour dommage, vous devez conserver le contenu de l'envoi ainsi que les cartons et emballages d'expédition d'origine et nous permettre de les inspecter au lieu de livraison, en plus de conserver tout ce matériel jusqu'à ce que la réclamation ait été résolue.

**Droit d'inspection.** Votre envoi peut, à notre discrétion ou à la demande des autorités gouvernementales, être ouvert et vérifié par nous ou par lesdites autorités à tout moment.

**Responsabilité de paiement.** Même dans le cas où vous nous donniez des instructions de paiement différentes, vous, l'expéditeur, serez toujours au premier titre responsable de tous les frais, y compris les frais de transport, et de tous droits, pénalités et amendes gouvernementales, taxes, ainsi que de nos honoraires d'avocat et frais légaux relatifs à cet envoi, en cas de défaut de paiement par le destinataire. Vous serez également responsable de tous les coûts que nous pourrions encourir pour le retour de votre envoi à vos locaux ou son entreposage en attendant tout arrangement.

**Lettre d'instruction.** Si vous ne remplissez pas tous les documents requis pour le transport, ou si les documents présentés par vous ne sont pas les documents qui conviennent aux services ou à la destination demandés, vous nous chargez par la présente, à l'ou la loi le permet, de remplir, corriger ou remplacer les documents à votre place et à vos frais. Toutefois, nous n'y sommes pas obligés. Si un formulaire de remplacement de Lettre de transport aérien est requis pour la livraison de votre envoi et que nous remplissons ce document, les modalités de la présente Lettre de transport aérien continueront de prévaloir. Nous ne sommes pas responsables envers vous ou quiconque des actions que nous menons pour votre compte en vertu de la présente disposition.

**Articles non transportables.** Nous n'acceptons pas de transporter certains articles, et nous pouvons accepter de ne transporter certains autres articles que vers des destinations spécifiques ou sous certaines conditions. Nous nous réservons le droit de refuser des colis en vertu de ces restrictions ou pour des raisons de sécurité. Pour plus de détails, consultez le Guide des services de FedEx actuel, nos Conditions normales de transport ou tout tarif en vigueur.

**Loi impérative.** Dans la mesure où l'une des stipulations contenues ou indiquées dans la présente Lettre de transport aérien, dans le Guide des services de FedEx actuel ou dans tout tarif en vigueur est contraire à toute loi, réglementation, ordonnance ou exigence gouvernementale, ladite stipulation restera applicable en tant que partie de notre accord tant qu'elle n'aura pas été rendue caduque. L'invalidité ou le caractère non exécutoire de toute stipulation n'affectera aucune partie de la présente Lettre de transport aérien, du Guide des services de FedEx actuel ou de tout tarif en vigueur.

FAA

## Country Specific Steps to Obtain Japanese Type Certificate

### JAPAN Civil Aviation Bureau of Japan (JCAB)

GENERAL INFORMATION		
	For more details see IPA paragraph:	Note
JCAB issues a TC for an aircraft only. A Type Approval (TA) is issued for engines, propellers, and critical parts as defined in CAR Article 27.	3.0.2.0	
<b>AIR-40 Inbox</b>		7-AWA-AVS-AIR-040@faa.gov



## Country Specific Steps to Obtain Japanese Type Certificate

### JAPAN Civil Aviation Bureau of Japan (JCAB)

APPLICATION PROCEDURE FOR TC		
	For more details see IPA paragraph:	Note
<b>Applicant Responsibilities</b>		
1. Use appropriate JCAB application available at:	3.0.2.1(a)	Article 14-2 and 17 <a href="http://www.cas.go.jp/jp/seisaku/hourei/d ata/caa.pdf">http://www.cas.go.jp/jp/seisaku/hourei/d ata/caa.pdf</a>
2. Complete application and send to their ACO with applicable data	3.0.2.1(a) 3.0.2.1(b)	
<b>ACO Responsibilities</b>		
1. Notify JCAB if product is level of complexity the FAA has not previously certificated.	3.0.2.1(d)	
2. Send applications for Japanese TC sent when FAA has issued TC or when applicant has submitted application to FAA for US TC (i.e., TC pending)	3.0.2.1(a)	
3. Ensure the applications include:	3.0.2.1(a)	
a. ACO cover letter on behalf of applicant ( <i>Not necessary but helpful to track receipt and provide POC to JCAB</i> )		Use Memo 08-03 Appendix 1 pages 1 and 2 on AIR-40 website
b. Application form completed by applicant	3.0.2.1(a)	
c. General description of the design	3.0.2.1(a)(1)	
d. Copy of FAA TC, if issued	3.0.2.1(a)(1)	
e. Copy of FAA TCDS, if established	3.0.2.1(a)(1)	
f. Definition of airworthiness and environmental standards for US approval	3.0.2.1(a)(1)	
g. Amendment level of Japanese airworthiness and environmental standards FAA believes satisfied by FAA standards	3.0.2.1(a)(1)	
h. Applicant's requested data for JCAB TC	3.0.2.1(a)(2)	
i. <b>If known</b> at time of application:		
i. Description of novel or unusual design features possibly requiring JCAB special conditions or special review of acceptable means of compliance	3.0.2.1(b)(1)	
ii. Known or expected exemptions or equivalent levels of safety (ELOS) findings	3.0.2.1(b)(2)	
iii. Info on specific customers including delivery schedule	3.0.2.1(b)(3)	
4. Forward above items to JCAB:	3.0.2.1(c) Appendix A	Airworthiness Division Engineering Department Civil Aviation Bureau 2-1-3, Kasumigaseki, Chiyoda-ku, Tokyo, 100-8918, Japan

## Country Specific Steps to Obtain Japanese Type Certificate

### JAPAN Civil Aviation Bureau of Japan (JCAB)

POST APPLICATION - PRE-TC ISSUANCE PROCEDURES		
	For more details see IPA paragraph:	Note
<b>ACO Responsibilities</b>		
1. Arrange a familiarization meeting to discuss validation process, US cert basis, all novel or unusual features.	3.0.2.2(a)	
2. Support establishment of Project Cert Team, reach agreement with JCAB on compliance plan. More involvement is needed if this is a joint design approval.	3.0.2.3	
3. Arrange for technical meeting when requested by JCAB.	3.0.2.7(a)	
4. Regularly inform JCAB of progress on US TC	3.0.2.7(c)	
5. Notify JCAB Program Manager on design features that might cause or have caused FAA to develop special condition or ELOS	3.0.2.7(c)	
<b>JCAB Responsibilities</b>		
1. Support familiarization meeting	3.0.2.2(a)	
2. Work to establish Japanese type certification basis	3.0.2.2(b)	
3. Establish Project Cert Team, and reach agreement with FAA on compliance plan.	3.0.2.3	
4. Notify FAA of Project Manager.	3.0.2.3	
5. Communicate and justify in writing to FAA need for technical meetings	3.0.2.7(a)	
6. Identify in writing areas for further JCAB involvement. Involvement will be based on:	3.0.2.7(b)	
a. New or novel feature	3.0.2.7(b)(1)	
b. New JCAB airworthiness requirements	3.0.2.7(b)(2)	
c. Sensitive issues like accidents of similar products	3.0.2.7(b)(3)	
d. New MOCs or novel applications of existing MOCs	3.0.2.7(b)(4)	
<b>Applicant Responsibilities</b>		
1. Support familiarization meeting.	3.0.2.2(a)	
2. Be prepared to provide briefing on production quality system	3.0.2.2(d)	

## Country Specific Steps to Obtain Japanese Type Certificate

### JAPAN Civil Aviation Bureau of Japan (JCAB)

ESTABLISHING CERT BASIS FOR APPROVAL		
	For more details see IPA paragraph:	Note
<b>JCAB Responsibilities</b>		
1. Establish the type cert basis	3.0.2.4(a)	
2. Use applicable standards in effect on date application made to FAA for U.S. TC	3.0.2.4(a)	
3. May supplement applicable airworthiness requirements with additional technical conditions in interest of safety	3.0.2.4(b)(1)	
4. May develop special conditions for novel and unusual features	3.0.2.4(b)(2)	
5. Use applicable environmental standards in effect on date application made to JCAB for JCAB TC	3.0.2.4(c)	
6. May request in writing data necessary to find compliance to additional technical conditions, special conditions, and ELOS	3.0.2.6	
7. Prepare issue papers	3.0.2.8(a)	FAA's issue papers may be used when JCAB and FAA positions are equivalent
8. Coordinate all issue papers including changes with FAA	3.0.2.8(b)	
9. Follow procedures for Environmental Testing and Approval	3.0.2.9	
<b>ACO Responsibilities</b>		
1. Review JCAB proposed cert basis	3.0.2.5	
2. Notify JCAB of applicant's proposed MOC to JCAB cert basis	3.0.2.5	
3. Verify JCAB requested data for additional technical conditions, special conditions, and ELOS was reviewed or approved by FAA	3.0.2.6	
4. Follow procedures for Environmental Testing and Approval	3.0.2.9	



## Country Specific Steps to Obtain Japanese Type Certificate

### JAPAN Civil Aviation Bureau of Japan (JCAB)

ISSUANCE OF THE TC		
	For more details see IPA paragraph:	Note
<b>Applicant Responsibility</b>		
1. Demonstrate compliance to Japanese cert basis	3.0.2.10(a)	
<b>ACO Responsibilities</b>		
1. Issue US TC to applicant if complete	3.0.2.10(c)	
2. Issue certifying statement to JCAB TC with requested materials	3.0.2.10(b)	
3. Forward Japanese TC to applicant	3.0.2.10	
<b>JCAB Responsibilities</b>		
1. Prepare Japanese TC and TCDS and forward to FAA	3.0.2.10	

## Country Specific Steps to Obtain Japanese Supplemental Type Certificate

### JAPAN Civil Aviation Bureau of Japan (JCAB)

GENERAL INFORMATION		
	For more details see IPA paragraph:	Note
JCAB will issue STC if:		
1. U.S. is State of Design for design change and FAA has issued STC and	3.0.4(a)	
2. product has been validated by JCAB. The products must be agreed to as noted in paragraph 2.0.	3.0.4(a)	
JCAB may accept concurrent STC certifications/validations	3.0.8	
<b>AIR-40 Inbox</b>		7-AWA-AVS-AIR-040@faa.gov



## Country Specific Steps to Obtain Japanese Supplemental Type Certificate

### JAPAN Civil Aviation Bureau of Japan (JCAB)

APPLICATION PROCEDURE		
<b>Applicant Responsibilities</b>		
1. Applicants submit application package and send to their geographic ACO	3.0.4(b)	
2. Request application be forwarded to JCAB	3.0.4(b)	Appendix A has JCAB addresses
<b>ACO Responsibilities</b>		
1. Review application to ensure its within scope of IPA		
2. Ensure application contains the following:		
a. ACO cover letter on behalf of applicant ( <i>Not necessary but helpful to track receipt and provide POC to JCAB</i> )		Use Memo 08-03 Appendix 1 pages 1 and 2 on AIR-40 website
b. Description of change, make and model of product	3.0.4(c)(1)	
c. Copy of U.S. STC and certification basis	3.0.4(c)(2)	
d. Planning date for JCAB issuance of STC	3.0.4(c)(3)	
e. Description of novel or unusual design features which might necessitate issuance of JCAB special conditions	3.0.4(c)(4)	
f. All exemptions or equivalent level of safety findings granted by the FAA for U.S. STC	3.0.4(c)(5)	
3. Forward above items to JCAB:	3.0.4(b)	Airworthiness Division Engineering Department Civil Aviation Bureau 2-1-3, Kasumigaseki, Chiyoda-ku, Tokyo, 100-8918, Japan

## Country Specific Steps to Obtain Japanese Supplemental Type Certificate

### JAPAN Civil Aviation Bureau of Japan (JCAB)

ESTABLISHING CERT BASIS FOR APPROVAL FOR STC		
	For more details see IPA paragraph:	Note
<b>Applicant Responsibilities</b>		
1. If acoustical change involved, show compliance to CAR Annex 2 in effect on date of application to JCAB	3.0.4(e)	
2. If emissions change involved, show compliance to CAR Annex 3 in effect on date of application to JCAB	3.0.4(e)	
<b>ACO Responsibilities</b>		
1. Determine if streamline approach should be suggested to JCAB for agreement	3.0.4(f)	
2. Ensure the applicant has following documentation for JCAB review, as applicable:		
a. Compliance checklist	3.0.3(g)(1)	
b. Aircraft Flight Manual (AFM) Supplement	3.0.3(g)(2)	
c. Master document list/master drawing list	3.0.3(g)(3)	
d. Manufacturing and installation instruction drawings	3.0.3(g)(4)	
e. Maintenance/repair manual supplements	3.0.3(g)(5)	
f. Weight and balance data	3.0.3(g)(6)	
g. Instructions for Continued Airworthiness	3.0.3(g)(7)	
<b>JCAB Responsibilities</b>		
1. Establish STC certification basis, including environmental requirements, per JCAB Circular 1-001, <i>General Policy and Procedures for Certification and Inspection</i>	3.0.4(d)	
2. Notify FAA receipt of application package ( <i>Not necessary but very helpful</i> )		

## Country Specific Steps to Obtain Japanese Supplemental Type Certificate

### JAPAN Civil Aviation Bureau of Japan (JCAB)

ISSUANCE OF THE STC		
	For more details see IPA paragraph:	Note
<b>JCAB Responsibilities</b>		
1. JCAB issues STC and forwards to FAA when:		
a. Applicant has demonstrated compliance to the Japanese type certification basis	3.0.4(h)(1)	
b. FAA has issued statement of compliance to JCAB's certification basis, and	3.0.4(h)(2)	
c. FAA has issued US STC	3.0.4(h)(3)	
<b>ACO Responsibilities</b>		
1. Notify and forward Japanese STC once above items are completed and STC is received	3.0.4(h)	

Japan Civil Aviation Bureau  
Ministry of Land, Infrastructure and Transport

No. 47  
Rev. 3  
ROBINSON  
R44  
R44 II  
December 15, 2009

*Type Certificate Data Sheet*

No. 47

This data sheet which is part of Type Certificate No. 47-1 prescribes the conditions and limitations under which the product(s) for which the Type Certificate was granted meet(s) the standards of airworthiness required by the Civil Aeronautics Law and Regulations of Japan.

Type Certificate Holder Robinson Helicopter Company  
2901 Airport Drive  
Torrance, California 90505  
U.S.A.

**1. Model R44 Helicopter (Normal Category), Approved November 15, 2002**

Engine Lycoming O-540-F1B5

Fuel 100 minimum grade aviation gasoline  
100/130 minimum grade aviation gasoline

Engine Limits Maximum continuous: 205 hp at 2,718 rpm (102%)  
Takeoff (5 minute): 225 hp at 2,718 rpm (102%)

See Rotorcraft Flight Manual (RTR 461) for maximum manifold pressure corresponding to horsepower rating.

Rotor limits

Power Off (Rotor Tach.)	Power On (Rotor Tach.)
Maximum: (108%) 432 rpm	Maximum: (102%) 408 rpm
Minimum: (90%) 360 rpm	Minimum: (90%) 396 rpm

Airspeed Limits (CAS)  $V_{NE}$  (never exceed speed) at sea level is 130 KIAS (120 KIAS with fixed floats) for takeoff gross weights of 2,200 lb. or less.  $V_{NE}$  at sea level is 120 KIAS (110 KIAS with fixed floats) for takeoff gross weights over 2,200 lb.

Power Off (Autorotation)  $V_{NE}$  at sea level is 100 KIAS.

For reduction of  $V_{NE}$  with altitude and temperature, see R44 Rotorcraft Flight Manual (RTR 461).

Airspeed limit at power settings above Maximum Continuous Power is 100 KIAS.

Airspeed limit with inflated pop-out floats is 80 KIAS.

Airspeed limit for any combination of Doors Off is 100 KIAS.

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C.G. Range

Longitudinal CG			Lateral CG		
Gross Weight (lb.)	Forward (in.)	Aft (in.)	Long. CG (in.)	Left (in.)	Right (in.)
1,550	92.0	102.5	92.0	-3.0	+3.0
2,000	92.0	102.5	100.0	-3.0	+3.0
2,200	92.0	100.25	102.5	-1.5	+1.5
2,400	93.0	98.0			

Note: Straight line variation between points shown.

Empty Weight C.G. Range

Calculated C.G. with 150 lb.(68.0 kg) pilot and full fuel must be STA 102.5 or forward.

Maximum Weight

2,400 lb. (1,089 kg)

Minimum Crew

1 pilot in forward right seat.

Number of Seats

4 (3 for Police Version)  
Seat Locations: Pilot and Forward Passenger at STA 49.5  
Aft Passenger at STA 79.5

Maximum Baggage

50 pounds (23 kg) of baggage and installed equipment in any baggage compartment. For any seat location, the maximum combined weight of the seat load, baggage and installed equipment is 300 lb.(136 kg)

Fuel Capacity

Tank	Tanks Without Bladders		Tanks With Bladders		Location (STA)
	Capacity (gal.)	Usable (gal.)	Capacity (gal.)	Usable (gal.)	
Main	31.6	30.6	30.5	29.5	106.0
Auxiliary	18.5	18.3	17.2	17.0	102.0

Oil Capacity

Component	Capacity (qt.)	Location (STA)
Engine	9	110.0
Main Rotor Transmission	2	100.0
Tail Rotor Transmission	0.11	327.0
Hydraulic Reservoir (if installed)	0.65	117.0

Maximum Operation Altitude

Density Altitude Limit - 14,000 ft.  
Maximum altitude above ground level is 9,000 ft. to allow landing within 5 minutes in case of fire.

Manufacturer's Serial Numbers

0002, 0004 through 9999, except 1140

Certification Basis

Japanese Civil Aeronautics Regulations Annex 1  
Part IV of the TAIKUSEI-SHINSA-YORYO (JCAB Airworthiness Standards) dated April 4, 1992 (limited to parts equivalent to the Federal Aviation Regulations Part 27 including Amendment 27-1 through 27-19) and FAR Part 27 effective February 1, 1965, including amendment 27-20 through 27-24

Exemptions

FAA Exemption No.5473 dated July 2, 1992, to FAR27.955(a)(7) and FAR27.1305 (q), and FAA Exemption No.6692 dated October 17, 1997 to FAR27.695

Noise Requirements

Japanese Civil Aeronautics Regulations Annex 2, Chapter 7 (equivalent to ICAO Annex16, Vol. 1, Chapter 11)

Equivalent Level of Safety

Number TD10352LA-R/S-1

14 CFR Part 27.1401(d), Anticollision Light System

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (See Certification Basis) must be installed in the aircraft for certification. In addition, the applicable JCAB-approved Rotorcraft Flight Manual is required (See Notes 4,5&6).

**2. Model R44 II Helicopter (Normal Category), Approved February 10, 2003**

The R44 II helicopter changes to a fuel injected engine with a 245 hp takeoff rating and a maximum weight of 2500lb. Main and tail rotor blade are redesigned.

Engine

Lycoming IO-540-AE1A5

Fuel

100 minimum grade aviation gasoline

100/130 minimum grade aviation gasoline

Engine Limits

Maximum continuous: 205 hp at 2,718 rpm (102%)

Takeoff (5 minute): 245 hp at 2,718 rpm (102%)

See R44 II Rotorcraft Flight Manual (RTR 462), dated October 3, 2002 or later FAA approved revision, for maximum manifold pressure corresponding to horsepower rating.

Rotor limits

Power Off (Rotor Tach.)	Power On (Rotor Tach.)
Maximum: (108%) 432 rpm	Maximum: (102%) 408 rpm
Minimum: (90%) 360 rpm	Minimum: (101%) 404 rpm

Airspeed Limits (CAS)

$V_{NE}$  (never exceed speed) at sea level is 130 KIAS (120 KIAS with fixed floats) for takeoff gross weights of 2,200 lb. or less.  $V_{NE}$  at sea level is 120 KIAS (110 KIAS with fixed floats) for takeoff gross weights over 2,200 lb.

Power Off (Autorotation)  $V_{NE}$  at sea level is 100 KIAS.

For reduction of  $V_{NE}$  with altitude and temperature, see R44 II Rotorcraft Flight Manual (RTR 462) dated February 10, 2003, or later FAA Approved revision.

Airspeed limit at power settings above Maximum Continuous Power is 100 KIAS.

Airspeed limit with inflated pop-out floats is 80 KIAS.

Airspeed limit for any combination of Doors Off is 100 KIAS.

C.G. Range

Longitudinal CG			Lateral CG		
Gross Weight (lb.)	Forward (in.)	Aft (in.)	Long. CG (in.)	Left (in.)	Right (in.)
1,600	92.0	102.5	92.0	-3.0	+3.0
2,100	92.0	102.5	100.0	-3.0	+3.0
2,300	92.0	100.25	102.5	-1.5	+1.5
2,500	93.0	98.0			

Note: Straight line variation between points shown.

Empty Weight C.G. Range

Calculated C.G. with 150 lb.(68.0 kg) pilot and full fuel must be STA 102.5 or forward.

Maximum Weight 2,500 lb. (1,134 kg)  
2,400 lb. (1,089 kg) for intentional water landings with fixed or pop-out floats.

Minimum Crew 1 pilot in forward right seat.

Number of Seats 4 (3 for Police Version)  
Seat Locations: Pilot and Forward Passenger at STA 49.5  
Aft Passenger at STA 79.5

Maximum Baggage 50 pounds (23 kg) of baggage and installed equipment in any baggage compartment. For any seat location, the maximum combined weight of the seat load, baggage and installed equipment is 300 lb.(136 kg)

Tank	Tanks Without Bladders		Tanks With Bladders		Location (STA)
	Capacity (gal.)	Usable (gal.)	Capacity (gal.)	Usable (gal.)	
Main	31.6	30.6	30.5	29.5	106.0
Auxiliary	18.5	18.3	17.2	17.0	102.0

Component	Capacity	Location
	(qt.)	(STA)
Engine	9	110.0
Main Rotor Transmission	2	100.0
Tail Rotor Transmission	0.11	327.0
Hydraulic Reservoir (if installed)	0.65	117.0

Maximum Operation Altitude Density Altitude Limit - 14,000 ft.  
Maximum altitude above ground level is 9,000 ft. to allow landing within 5 minutes in case of fire.

Manufacturer's Serial Numbers 1140, 10001 and subsequent

Certification Basis Japanese Civil Aeronautics Regulations Annex 1  
Part IV of the TAIKUSEI-SHINSA-YORYO (JCAB Airworthiness Standards) dated April 4, 1992 (limited to parts equivalent to the Federal Aviation Regulations Part 27 including Amendment 27-1 through 27-19) and  
FAR Part 27 effective February 1, 1965, including amendment 27-20 through 27-24

#### Exemptions

FAA Exemption No.6692 dated October 17, 1997 to FAR27.695

#### Noise Requirements

Japanese Civil Aeronautics Regulations Annex 2, Chapter 7 (equivalent to ICAO Annex16, Vol. 1, Chapter 11)

#### Equivalent Level of Safety

Number TD10352LA-R/S-1

14 CFR Part 27.1401(d), Anticollision Light System

Equipment The basic required equipment as prescribed in the applicable airworthiness regulations (See Certification Basis) must be installed in the aircraft for certification. In addition, the applicable JCAB-approved Rotorcraft Flight Manual is required (See Notes 7 & 8).



DATA PERTINENT TO ALL MODELS

Datum 100 in. forward of main rotor centerline.

Leveling Means Refer to the R44 Maintenance Manual and Instructions for Continued Airworthiness (RTR 460).

Rotor Blade and Control Movements Main Rotor blade angles at 75% radius:

Collective Pitch:  $12.5^{\circ} \pm 1.0^{\circ}$  total travel

Note: Collective low pitch to be established in accordance with the Maintenance Manual and Instructions for Continued Airworthiness (RTR 460) procedures to obtain proper autorotation RPM.

Cyclic Pitch:	Forward	$13.50^{\circ}$ to $14.25^{\circ}$
	Aft	$13.50^{\circ}$ to $14.25^{\circ}$
	Left	$7.5^{\circ}$ to $8.5^{\circ}$
	Right	$6.0^{\circ}$ to $7.0^{\circ}$

Tail Rotor blade angles at 75% radius:

Collective Pitch: Thrust to left  $15.5^{\circ}$  to  $16.5^{\circ}$   
Thrust to right  $18.5^{\circ}$  to  $19.0^{\circ}$

Import Requirement "Type design approved by JCAB" referred to in FAA Advisory Circular AC21-2J Appendix 2 "Japan Special Requirements" Section 3.1(1) shall be indicated as "JCAB Type Certificate No.47" in Export Certificate of Airworthiness.

Service Information Service Bulletins and maintenance manual, which contain a statement that the document is FAA approved, are accepted by the JCAB and are considered JCAB approved. These approvals pertain to the type design only.

NOTE 1. A current weight and balance report, including a list of equipment included in the certificated empty weight, and loading instructions when necessary, must be provided for each aircraft at the time of original airworthiness certification and at all times thereafter, except in the case of operators having an approved weight control system.

NOTE 2. The following placard must be installed in clear view of the pilot:

"THIS ROTORCRAFT APPROVED FOR DAY AND NIGHT VFR OPERATIONS"

For additional placards, see the Rotorcraft Flight Manual. All placards required in the JCAB-approved Rotorcraft Flight Manual must be installed in the appropriate locations.

NOTE 3. Information essential to the proper maintenance of the helicopter, including retirement time of critical components, is contained in the Robinson R44 Maintenance Manual and Instructions For Continued Airworthiness (RTR 460). Retirement times are listed in the FAA-approved "AIRWORTHINESS LIMITATIONS" Section. The values of retirement or service life and inspection intervals cannot be changed without JCAB Engineering approval.

NOTE 4. JCAB-approved R44 Rotorcraft Flight Manual Supplement "Float Landing Gear" is required when fixed float landing gear is installed.



NOTE 5. JCAB-approved R44 Rotorcraft Flight Manual Supplement "Emergency Floats" is required when emergency (pop-out) floats are installed.

NOTE 6. Not applicable.

NOTE 7. JCAB-approved R44 II Rotorcraft Flight Manual Supplement "Fixed Floats" is required when fixed-float landing gear is installed.

NOTE 8. JCAB-approved R44 II Rotorcraft Flight Manual Supplement "Pop-Out Floats" is required when pop-out floats are installed.

NOTE J1. Dates of application for FAA and JCAB Type Certificate are as follows.

Model	FAA No.H11NM	JCAB No.47
R44	March 4, 1987	November 27, 2001
R44 II	October 3, 2002	February 10, 2003

NOTE J2. This Type Certificate Data Sheet (TCDS) is based on FAA TCDS No.H11NM Rev.6. ←

*Same as  
Cael.*

NOTE J3. Lycoming O-540-F1B5 engine has JCAB Type Approval No.603.  
Lycoming IO-540-AE1A5 engine has JCAB Type Approval No.628.

NOTE J4. JCAB-approved Rotorcraft Flight Manual shall be written in Japanese. |

NOTE J5. Specified placards shall be written in Japanese. |

NOTE J6. Installation of Global Positioning System for VFR requires JCAB-approved Flight Manual Supplement.

NOTE J7. Installation of white strobe light requires JCAB-approved Flight Manual Supplement.

- END -

FROM TRANSLATOR

Aero Design Ltd.



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Powell River, BC, V8A 0G3  
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FMS906.90

## ロビンソン R44, R44 II

### ロータークラフト 別冊フライトマニュアル

以下の項目について：

**AERO DESIGN** の取り付け

クイックリリースカーゴバスケット

カナダ追加型式設計承認番号 SH10-48

FAA 追加型式設計承認番号 SR02291NY

EASA 追加型式設計承認番号 \_\_\_\_\_

この文書のセクション I、II、III および IV には、当別冊フライトマニュアルのカナダ運輸省承認済みセクションが含まれています。セクション I の制限事項を必ず遵守してください。

セクション V、およびそれ以降にセクションが存在する場合、それらのセクションの内容は未承認で情報提供のみを目的として記載されています。

クイックリリースカーゴバスケット装着時、この別冊フライトマニュアルに記載されている情報およびデータはロビンソン R44 および R44 II の承認済みフライトマニュアルに記載されている事項より優先されるか、またはこれらの事項を補足します。この別冊フライトマニュアルに記載されていない制限事項、操作手順、および性能については、承認済みのフライトマニュアルまたは他の承認済み別冊マニュアルを参照してください。



改訂版 1  
2014 年 5 月 27 日

1/8 ページ  
カナダ運輸省承認済み

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改訂履歴

改訂数	改訂日	改訂ページ	データ挿入日	改訂者
0	2010 年 9 月 22 日	初版		
1	2014 年 5 月 27 日	1,2		

## I 制限事項

1. 一度に取り付け可能なバスケット数は左右いずれかに 1 つのみです。
2. AERO Design Ltd. クイックリリースカーゴバスケットの最大積載重量は 175 lb です。
3. フライト方式は AERO Design Ltd. カーゴバスケット装着時の有視界飛行方式に限られます。
4. 110 KIAS の最大  $V_{NE}$  はいずれかのバスケットが装着されている際の値です。どちらの値が小さいかに関わらず、 $V_{NE}$  が表示されている R44 または 110 KIAS のいずれかを使用してください。

## II 通常の操作手順

1. 飛行前の点検事項：
  - a) カーゴバスケットに積載されている全ての積荷がきちんと縛られ、飛行するにあたって適切に固定されていることを確認します。
  - b) カーゴバスケットの蓋が閉まっていて固定されていることを確認します。
  - c) バスケットが梁の適切な位置に固定されていることを確認します。バスケットの後端を引っ張って確認してください。

### 注意

積載の状態によってはロータークラフトの横方向の重心が上限を超える場合があります。パイロットはバスケットの積載時に G のうち横方向の C を限度内に収める必要があります。

## III 緊急時の操作手順

承認済みのフライトマニュアルに記載されている通りで変更はありません。

### 注意：

AERO Design Ltd. カーゴバスケット装着時のロータークラフトの滑空角は標準的なヘリコプターのものよりも急になります。

## IV 性能

カーゴバスケットをどちら側に装着しても飛行性能と範囲は約 14%減少します。

Aero Design Ltd.

FMS906.90

カーゴバスケットをどちら側に装着しても上昇性能は最大 300fpm 減少  
します。

**OCT 21 2010**

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## V 重量とバランス

1. 以下の重量とバランスはクイックリリースカーゴバスケットが図 90601の通りに装着されている場合の構成が前提となります。

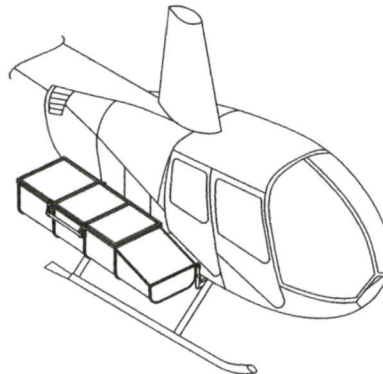


図 1-クイックリリースカーゴバスケットの構成

標準 P/N <sup>1</sup>	内容	重量	縦		横 <sup>2</sup>	
		lb	アーム in	モーメント in-lb	アーム in	モーメント in-lb
90610-01-XX	バスケット	41,8	112,4	4698,3	34,4	1437,9
90602-01-XX	マウント部	11,6	101,3	1174,5	7,2	84,0
<b>90601-01-XX</b>	<b>バスケット装着時</b>	<b>53,4</b>	<b>110,0</b>	<b>5872,8</b>	<b>28,5</b>	<b>1521,9</b>
最大積載値 <sup>3</sup> (バスケットの中央 に積載している場 合)		175,0	112,4	19670,0	34,4	6020,0

メートル法 P/N <sup>1</sup>	内容	重量	縦		横 <sup>2</sup>	
		kg	アーム mm	モーメント mm-kg	アーム mm	モーメント mm-kg
90610-01-XX	バスケット	18,9	2855	53999	874	16526
90602-01-XX	マウント部	5.3	2552	13396	184	965
<b>90601-01-XX</b>	<b>バスケット装着時</b>	<b>24.2</b>	<b>2789</b>	<b>67394</b>	<b>724</b>	<b>17491</b>
最大積載値 <sup>3</sup>		80.0	2855	228397	874	69901

(バスケットの中央  
に積載している場  
合)

<sup>1</sup> -XX はどちら側に取り付けられているかを示します。-01 は右側、 -02 は左側です。

<sup>2</sup> 横アームは左側でマイナスになります。

<sup>3</sup> 記載されている縦および横のモーメントアームの値はカーゴバスケットの中央部でのみ有効です。バスケットの長さや位置により、負荷のかかり方によっては重心での正確なモーメントを決定するためにモーメントアームの実際の測定が必要になる場合があります。

**注意：**

構成によっては横 CG の上限値を超える場合があります。

## VI 取り付け/取り外しを行うには

バスケットの取り付けは図 90601 のように行います。マウント部は図 90602 のように取り付けられています。フライト時にバスケットを取り外し、適切な位置に梁部分だけ残す構成は承認されています。バスケットの取り付けまたは取り外しを行った場合、ログブックにバスケットの取り付けまたは取り外しを行った事、重量とバランスの調整を行った事を記載する必要があります。

1. 取り付け - 図 2、3 を参照してください。
  1. バスケット前端で上部の取付け部を前梁にあるキー溝にセットします。バスケットを取付け部からぶら下げるようにして、残った後端部分が床に着くようにします。
  2. バスケットの後端を梁の後部まで上げてバスケット後端をスライドさせ、下部取付け部がキー溝に当たって止まるまで持ち上げます。
  3. 取付け部を下部のキー溝に押し込み、取り付け部の最上部をキー溝の最上部に嵌め、バスケットをロックがかかるまで下ろします。

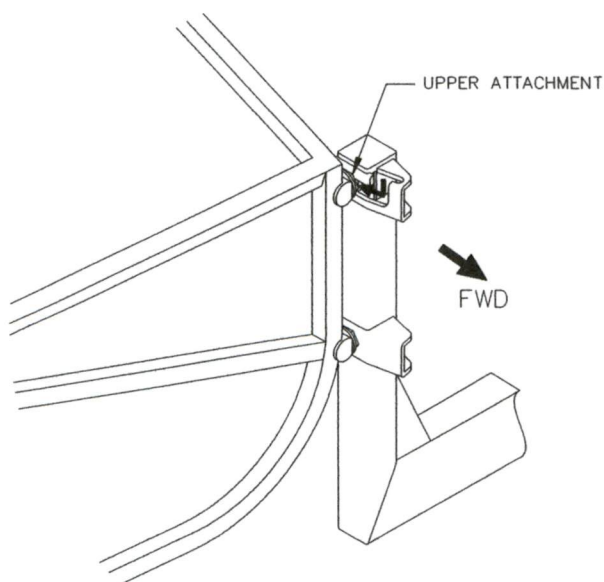


図 2 - バスケットの前方取付け部



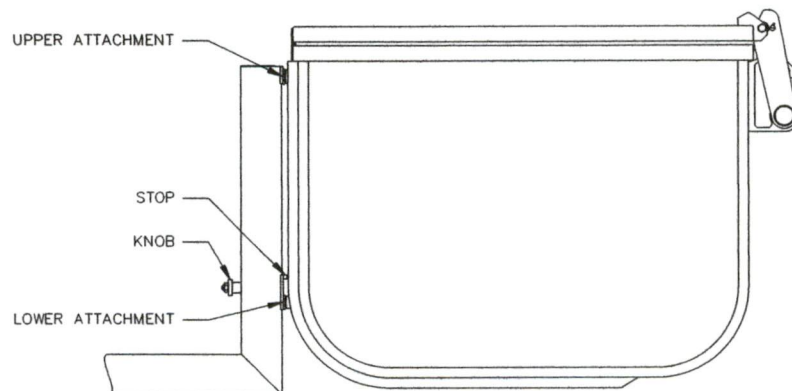


図3-バスケットの後方取付け部

2. 取り外し - 図2、3を参照してください。
  1. ノブを梁後部の底部端まで引き、取付け部がキー溝から外れるまでバスケットを持ち上げます。残った後端部分は床に着くようにします。
  2. バスケットを前方にスライドさせ、取付け部をキー溝から取り出して梁前部上に持ち上げます。

(c) Outline of inspection

Procedures for substantiation, documents for submission and timing for submission, attendance to the test, necessity of ground test and flight test, schedule and others shall be decided after advance coordination regarding the inspection with inspector in charge.

a. Evaluation of design

- Compliance with the applicable standards shall be examined by checking documents submitted.
- The inspector in charge shall attend to the tests, as necessary. Examples of test are static load test, flammability test, fire containment test, EMI flight test and ground test, measurement of level of noise or engine emissions and others.

b. Inspection on manufacturing process

- Manufacturing and conformity inspection of parts, inspection on alteration process, and inspection of method of quality control system shall be conducted, as necessary.

c. Inspection on current condition

- Inspection on the configuration of product after completion, and ground test and flight test shall be conducted, as necessary.

d. Others

- In case Flight Manual is changed, the contents of the change in Flight Manual submitted shall be examined and approved.

(Note) When the supplemental type design is applicable to one or more types of aircraft, substantiation for compliance with the applicable standards through documents or tests, and inspection on manufacturing process and current condition after completion shall be required for each type, if necessary.

(d) Issuance of certificate

When the supplemental type design is determined compliance with the applicable standards, supplemental type certificate shall be issued to the applicant.

3-2 An aircraft which has been approved for supplemental type design or for which any other approval has been granted by any foreign state which is a Contracting State to the Convention on International Civil Aviation

(Normally, this shall come under the supplemental type design which has been designed by a foreign person and approved by the authority of the foreign state concerned)

(1) Documents for submission

(a) Documents and drawings which adequately substantiate that the aircraft altered under the supplemental type design concerned comply with the standards under Article 10 paragraph 4 of the Law (such as airworthiness, noise, emission control for engine exhaust standards). (Limited to the part to be altered.)

- a. Means of Compliance, Compliance Check List (including related Compliance Check List, if the STC number is called) and other document which shows the compliance with applicable standards (including special condition, special additional

requirements, equivalent level of safety and exemption) in Japan.

- b. Test plan and reports *ER 906.01*
  - c. Test flight plan and flight test reports *FTP 906.03 / Michel Report*
  - d. Reports on the system safety assessment *N/A*
  - e. Reports shall indicate compliance with noise standards, including the following matters: *N/A*
    - (i) The maximum noise level which was demonstrated on the basis of Annex 2 of the Regulations
    - (ii) Measurement method and analysis method of noise, including the method of correction
    - (iii) Description of additional alteration made to comply with the noise certificate standards to be applied
  - f. Reports which indicate compliance with the criteria of the fuel venting standards required by the Annex 3 of the Regulations. (only for aircraft equipped with turbine engines) *N/A*
  - g. Reports which indicate compliance with the standards on exhaust emissions as required by the Annex 3 of the Regulations. (only for turbojet or turbofan engines) *N/A*
    - (i) Smoke value and exhaust gas value certified based on Annex 3 of the Regulations.  
(Note) According to the measurement or calculation method complying with Annex 3 of the Regulations, values of hydrocarbons, nitrogen oxides and carbon monoxide shall be attached.
    - (ii) Description of the additional alteration required to comply with the emission standards to be applied.
  - h. Issue Papers issued by the authority of the State of Design *N/A*
  - i. Drawing or design documents relating to the placard in Japanese
- 
- (b) Certification documents to be issued by government organizations of said states, the type certificate and other acts were made by said states. *SH10-48*
  - (c) Drawing lists *DCL 906-1 -2 -11 -12*
  - (d) Parts lists *N/A*  
For (c) or (d), the Master Drawing List describing the necessary matters may be submitted.
  - (e) Specifications
    - a. Outlines of design (including the contents of design changes, manufacturers and types, standards of airworthiness, noise and engine emissions which have been applied by said states, special conditions, equivalent level of safety and exemptions.) *DRAWINGS*
    - b. Overview of new technology or specific design *N/A*
  - (f) Flight Manual
    - a. Proposal of the additional flight manual *NEW FMS REQ.*  
(Note) 1. Language of the additional flight manual shall be Japanese, being a substitute for flight manual, except for the additional flight manual of the aircraft assumed only an air carrier using an operating manual with the approval of the Minister of Land, Infrastructure, Transport and Tourism.  
2. The additional flight manual for approval by the Civil Aviation Bureau shall comply with standards of noise, fuel emissions and exhaust gas specified in *N/A*



Annexes 2 and 3 of the Regulations the criteria for emissions and concluding descriptions about the noise value.

- (g) Maintenance procedures
    - a. Instructions for keeping airworthiness (Maintenance/Repair Manual, Supplement etc.) *ICA 906.91*
  - (h) Documents describing the necessary matters to calculate the weight and the position of the center of gravity of the aircraft. *IN PMS + ICA*
  - (i) Documents describing other reference matters (If applicable)
    - a. Report indicating fitting of the components required by the Regulations *N/A*
    - b. Documentation on the manufacturing
      - (i) Production Flight Test Procedure *N/A*
      - (ii) Manufacturing and Installation Instruction Drawing
    - c. Technical documents below:
      - (i) Operating Manual
      - (ii) Parts catalog
      - (iii) List and summary of the service bulletin applied for aircraft, engine or components and their main components.
      - (iv) The List and a summary of (Airworthiness Directive) applied for aircraft, engine or components and their main components.
    - d. Document shall demonstrate how to provide the electronic data of the latest version of the technical materials to the Civil Aviation Bureau.
    - e. Documents related to a cooperative system with the type certificate holders, or documents to demonstrate the ability of self-design, if necessary.
- (2) Outline of Inspection, etc.
- (a) Application
    - a. The applicant shall be a party other than the holder of the type certificate of said type aircraft and the holder of supplemental type design. It is possible to proceed by the agent, the inspection should proceed involving the person mentioned above.
    - b. An applicant shall have responsibility for the supplemental type design concerned.
    - c. In principle, an application shall be submitted through an authority of the State of Design.
    - d. Documents, except Flight Manual (submission is required if Flight Manual is changed), accompanied with an application shall be written in Japanese or English.
    - e. Flight Manual (submission is required if Flight Manual is changed) shall be referred to Appendix I-2 to Part I of this Circular.
    - f. Desired time to obtain supplemental type certificate of Japan
  - (b) Certification basis of supplemental type design
    - a. An applicant shall explain the outline of the supplemental type design, procedures for substantiation, special remarks on design or substantiation.
    - b. Certification basis for supplemental type design shall be airworthiness standards in Japan, which were effective, when the original State of Designs had accepted the application for said supplemental type design, in principle.  
However, when the supplemental type design seriously affects airworthiness, the certification basis shall be reconsidered after discussing the possibility of practical

application of the latest requirements which directly relate to the parts or area affected by the changes between Authority, the applicant and the authority of the State of Design.

The special conditions, additional special requirements, exemption and equivalent level of safety shall be imposed by Civil Aviation Bureau after discussing with Authority, the applicant and the authority of the State of Design.

- c. Signs and placards shall be written in Japanese.

However, in case of an aircraft operated by air carrier for a scheduled air transport service under the provisions of the former Law amended by the Law for amendment of the said Law (Law No. 72, 1999), English is acceptable except on emergency evacuation and safety equipment and their equivalents. (Refer to Circular No. 1-008.)

- (c) Outline of inspection

The outline of procedures for inspection for a supplemental type design shall be described below.

Procedures for substantiation, documents for submission and timing for submission, attendance to the test, necessity of ground test and flight test, schedule and others shall be decided after advance coordination regarding the inspection with inspector in charge.

- a. Evaluation of design

The certificate or approval (STC or its equivalents) issued by a foreign state or compliance checklist, and other documents submitted shall be examined to confirm substantiation status for compliance with the requirements.

- b. Inspection of the manufacturing process

- The concrete method of the participation to the manufacturing process by the authority of the State of Manufacture, manufacturing methods by the manufacturer, inspection methods (including special processes), management of tool and quality assurance shall be reviewed.
- The inspection requirements of the manufacturer and the authority of the State of Manufacture for export to Japan shall be reviewed.

(Note) Airworthiness tags (FAA Form 8130-3, EASA Form 1 and their equivalents) designated by the State of Manufacture shall be attached to the parts to be used.

- c. Inspection on current condition

Inspection on configuration after completion, ground test and flight test shall be conducted, as necessary.

- d. Others

In case Flight Manual is changed, the contents of the change in Flight Manual submitted shall be examined and approved.

(Note) When the supplemental type design is applicable to one or more types of aircraft, substantiation for compliance with the applicable standards through documents or tests, and inspection for manufacturing process and current condition after completion shall be required for each type, if necessary.

- (d) Issuance of certificate

When the supplemental type design is deemed compliant with the applicable standards, a supplemental type certificate shall be sent to the authority of the State of Design by the Civil Aviation Bureau.

- a. An applicant has demonstrated conformity to the applicable standards in Japan.
- b. The authority of the State of Design have, to the Civil Aviation Bureau, certified conformity to the applicable standards of our country, by attaching the documents additionally required by the Civil Aviation Bureau.
- c. The authority of the designing country have issued an additional type design approval.

Following matters shall be entered in remarks column of the certificate.

- a. Classification of work for aircraft modification by supplemental type design concerned (minor repair, minor alteration or major alteration)
- b. Certificate number of the foreign state concerned, if the supplemental type design is certificated by a foreign state.
- c. Other necessary matters

#### 4. Change of Supplemental Type Design

##### 4-1 Procedures for change of supplemental type design

- (a) Supplemental type design change of which approval and other acts have not been granted by a foreign state which is a contracting state of the Convention on International Civil Aviation (Generally, changes of STC designed by domestic organization by themselves shall fall under this article.)

Any person who has obtained a supplemental type certificate shall, when he or she intends to change the certificated design concerned, obtain approval from the Minister of Land, Infrastructure, Transport and Tourism. (Article 13-(2), paragraph 3 of the Law)

In addition, as for the following minor change of the supplemental type design, submission may be acceptable.

- (1) Installation, movement and removal of cabin equipment, galley equipment or small equipment which does not affect the emergency escape and the safety of crews and passengers.
  - (2) Minor configuration change of cabin interior without its material change
  - (3) Changes of entertainment system software
  - (4) Change of marking and placard not falling under Circular No. 1-008.
  - (5) Correction of obvious errors, addition of notes, the clarification of procedures, etc. on the attached drawing and so on.
- (b) Supplemental type design change of which approval and other acts have been granted by a foreign state which is a contracting state of the Convention on International Civil Aviation (Generally, changes of STC designed by foreign organization by themselves and its approval has already accepted by said foreign government shall fall under this article.)

The authority of the State of Design (including those having been delegated) has approved or must approve the said supplemental type design change. And then, according to the effect of



**Jeff Clarke**

**From:** Staal, Jack [Jack.Staal@tc.gc.ca]  
**Sent:** October 8, 2015 9:09 AM  
**To:** 'Jeff Clarke'  
**Subject:** FW: Japan customer for Aero Design cargo basket for the Robinson R44

Jeff,

This came in from another region (Ontario's experience) and is passed along. Note JCAB sent the application form directly in previous email (attached), I cannot open these embedded word attachments.

The procedures for JCAB application are as follow. Please let me know if you have any questions.

### 1.1 JCAB application forms.



### 1.2 Information about Japan STC.

- There are 2 types of STCs in Japan.
- "JSTC" is the same as Canadian STC which is for all models on the STC.
- "SSTC" is for dedicated modification which means the configuration of only one model has been installed in Japan.
- JCAB only has one AO/AP (same as DAR) to do dedicated modification.
- JCAB does not do provision STC. They only do full STC. If the Canadian STC is a provision STC, JCAB also validates the other areas as a full STC.
- JCAB only approves host aircraft which means the model has the modification installed in Japan.
- JCAB reviews the documents and also sends people to review the installation.
- It takes about 6 months for a STC familiarization in Japan.

### 1.3 Before submitting the data package. TCCA has to acquire the following information from the applicant.

- The valid configuration in Japan. *→ to be shipped shortly*
- If JCAB does not have all valid configurations, they may do a dedicated modification for the configuration they have. JCAB only approves the configuration installed on the aircraft in Japan.
- Local regional office information.
- The applicant has to provide the contact information (name and address) of the local region (Tokyo or Osaka) of the modification installer in Japan. The application must be sent to the correct region. *↑ KANAZAWA IS WEST OF TOYAMA → PER CIRCULAR 1-001*

### 1.4 Sample letter to JCAB:

- RDIMS 6571664 for initial JCAB STC application.

### 1.5 Data package submitted by the applicant should include the following items:

- Cover letter to confirm the models have the modification installed in Japan and contact information of the Japan local regional office. ✓
- TC application (Form number 26-0469 in <http://wwwapps.tc.gc.ca/Corp-Serv-Gen/5/Forms-Formulaire/search/>) ✓

- JCAB application form ✓
- Declaration of Conformity to the corresponding JCAB Type Certificate Data Sheet (in a letter format) ✓
- Copy of Canadian STC ✓
- Checklist (template attached) ?
- All documents called out on the STC ✓
- All documents required for the JCAB validation ✓

1.6 Submit 2 sets of data package to TCCA (one in hard copy and one in CD for TCCA to keep).

1.7 The data package (hard copy) will be sent via regular mail. If courier service is required, the applicant has to provide the courier account number in the cover letter.

J.H. (Jack) Staal

Aircraft Certification Technologist | Technologue, Certification des aeronefs.

Engineering | Ingénierie

Prairie and Northern Region | Region des Prairies et du Nord

Edmonton Operations | Edmonton opérations

(780)495-5227 | Faxes/ telec: (780)495-6659 (note recent fax change)

jack.staal@tc.gc.ca

Transport Canada | 1100-9700 Jasper Ave | Edmonton | Ab T5J-4E6 (RAXI)

Transports Canada | 1100-9700 av. Jasper | Edmonton | Ab T5J-4E6 (RAXI)

Government of Canada | Gouvernement du Canada

To provide feedback to TCCA, use CAIRS.

See: <http://www.tc.gc.ca/CivilAviation/ManagementServices/QA/cairs.htm>

Pour tout commentaire à TCAC, utiliser CAIRS.

Voir: <http://www.tc.gc.ca/AviationCivile/ServicesdeGestion/AQ/ssqac.htm>

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**From:** 野村 祐司 [mailto:nomura-y97ru@cab.mlit.go.jp]

**Sent:** Thursday, October 08, 2015 4:45 AM

**To:** Staal, Jack

**Cc:** 'Jeff Clarke'

**Subject:** RE: Japan customer for Aero Design cargo basket for the Robinson R44

Dear Sir,

I reply the your questions.

1)

I send to the application form.

Please check the attachment data (file name : application form 11-2.doc).

2)

I send to the JCAB Type Certificate Data Sheet for the Robinson R44 helicopters.

Please check the attachment data (file name : R44.pdf).

3)

The application and data package Please send to Kasumigaseki, Chiyoda-ku, Tokyo.

08/10/2015



Current (April 2015)

(c) Outline of inspection

Procedures for substantiation, documents for submission and timing for submission, attendance to the test, necessity of ground test and flight test, schedule and others shall be decided after advance coordination regarding the inspection with inspector in charge.

a. Evaluation of design

- Compliance with the applicable standards shall be examined by checking documents submitted.
- The inspector in charge shall attend to the tests, as necessary. Examples of test are static load test, flammability test, fire containment test, EMI flight test and ground test, measurement of level of noise or engine emissions and others.

b. Inspection on manufacturing process

- Manufacturing and conformity inspection of parts, inspection on alteration process, and inspection of method of quality control system shall be conducted, as necessary.

c. Inspection on current condition

- Inspection on the configuration of product after completion, and ground test and flight test shall be conducted, as necessary.

d. Others

- In case Flight Manual is changed, the contents of the change in Flight Manual submitted shall be examined and approved.

(Note) When the supplemental type design is applicable to one or more types of aircraft, substantiation for compliance with the applicable standards through documents or tests, and inspection on manufacturing process and current condition after completion shall be required for each type, if necessary.

(d) Issuance of certificate

When the supplemental type design is determined compliance with the applicable standards, supplemental type certificate shall be issued to the applicant.

3-2 An aircraft which has been approved for supplemental type design or for which any other approval has been granted by any foreign state which is a Contracting State to the Convention on International Civil Aviation

(Normally, this shall come under the supplemental type design which has been designed by a foreign person and approved by the authority of the foreign state concerned)

(1) Documents for submission

(a) Documents and drawings which adequately substantiate that the aircraft altered under the supplemental type design concerned comply with the standards under Article 10 paragraph 4 of the Law (such as airworthiness, noise, emission control for engine exhaust standards). (Limited to the part to be altered.)

- a. Means of Compliance, Compliance Check List (including related Compliance Check List, if the STC number is called) and other document which shows the compliance with applicable standards (including special condition, special additional

- requirements, equivalent level of safety and exemption) in Japan. ✓
- b. Test plan and reports ✓
  - c. Test flight plan and flight test reports ✓
  - d. Reports on the system safety assessment ✓
  - e. Reports shall indicate compliance with noise standards, including the following matters:
    - (i) The maximum noise level which was demonstrated on the basis of Annex 2 of the Regulations ✓
    - (ii) Measurement method and analysis method of noise, including the method of correction
    - (iii) Description of additional alteration made to comply with the noise certificate standards to be applied
  - f. Reports which indicate compliance with the criteria of the fuel venting standards required by the Annex 3 of the Regulations. (only for aircraft equipped with turbine engines) ✓
  - g. Reports which indicate compliance with the standards on exhaust emissions as required by the Annex 3 of the Regulations. (only for turbojet or turbofan engines) ✓
    - (i) Smoke value and exhaust gas value certified based on Annex 3 of the Regulations.
      - (Note) According to the measurement or calculation method complying with Annex 3 of the Regulations, values of hydrocarbons, nitrogen oxides and carbon monoxide shall be attached.
    - (ii) Description of the additional alteration required to comply with the emission standards to be applied.
  - h. Issue Papers issued by the authority of the State of Design ✓
  - i. Drawing or design documents relating to the placard in Japanese ✓
- (b) Certification documents to be issued by government organizations of said states, the type certificate and other acts were made by said states. ✓
  - (c) Drawing lists ✓
  - (d) Parts lists ✓
- For (c) or (d), the Master Drawing List describing the necessary matters may be submitted.
- (e) Specifications
    - a. Outlines of design (including the contents of design changes, manufacturers and types, standards of airworthiness, noise and engine emissions which have been applied by said states, special conditions, equivalent level of safety and exemptions.) ✓
    - b. Overview of new technology or specific design ✓
  - (f) Flight Manual
    - a. Proposal of the additional flight manual
      - (Note) 1. Language of the additional flight manual shall be Japanese, being a substitute for flight manual, except for the additional flight manual of the aircraft assumed only an air carrier using an operating manual with the approval of the Minister of Land, Infrastructure, Transport and Tourism. ✓
      - 2. The additional flight manual for approval by the Civil Aviation Bureau shall comply with standards of noise, fuel emissions and exhaust gas specified in

Annexes 2 and 3 of the Regulations the criteria for emissions and concluding descriptions about the noise value.

- (g) Maintenance procedures
    - a. Instructions for keeping airworthiness (Maintenance/Repair Manual, Supplement etc.) ✓
  - (h) Documents describing the necessary matters to calculate the weight and the position of the center of gravity of the aircraft. ✓
  - (i) Documents describing other reference matters (If applicable)
    - a. Report indicating fitting of the components required by the Regulations
    - b. Documentation on the manufacturing
      - (i) Production Flight Test Procedure\_
      - (ii) Manufacturing and Installation Instruction Drawing
    - c. Technical documents below: ✓
      - (i) Operating Manual
      - (ii) Parts catalog
      - (iii) List and summary of the service bulletin applied for aircraft, engine or components and their main components.
      - (iv) The List and a summary of (Airworthiness Directive) applied for aircraft, engine or components and their main components.
    - d. Document shall demonstrate how to provide the electronic data of the latest version of the technical materials to the Civil Aviation Bureau.
    - e. Documents related to a cooperative system with the type certificate holders, or documents to demonstrate the ability of self-design, if necessary.
- (2) Outline of Inspection, etc.
- (a) Application
    - a. The applicant shall be a party other than the holder of the type certificate of said type aircraft and the holder of supplemental type design. It is possible to proceed by the agent, the inspection should proceed involving the person mentioned above. ✓
    - b. An applicant shall have responsibility for the supplemental type design concerned. ✓
    - c. In principle, an application shall be submitted through an authority of the State of Design. ✓
    - d. Documents, except Flight Manual (submission is required if Flight Manual is changed), accompanied with an application shall be written in Japanese or English. ✓
    - e. Flight Manual (submission is required if Flight Manual is changed) shall be referred to Appendix I-2 to Part I of this Circular. ✓
    - f. Desired time to obtain supplemental type certificate of Japan ✓
  - (b) Certification basis of supplemental type design
    - a. An applicant shall explain the outline of the supplemental type design, procedures for substantiation, special remarks on design or substantiation. ✓
    - b. Certification basis for supplemental type design shall be airworthiness standards in Japan, which were effective, when the original State of Designs had accepted the application for said supplemental type design, in principle. ✓  
However, when the supplemental type design seriously affects airworthiness, the certification basis shall be reconsidered after discussing the possibility of practical



application of the latest requirements which directly relate to the parts or area affected by the changes between Authority, the applicant and the authority of the State of Design.

The special conditions, additional special requirements, exemption and equivalent level of safety shall be imposed by Civil Aviation Bureau after discussing with Authority, the applicant and the authority of the State of Design.

- c. Signs and placards shall be written in Japanese.

However, in case of an aircraft operated by air carrier for a scheduled air transport service under the provisions of the former Law amended by the Law for amendment of the said Law (Law No. 72, 1999), English is acceptable except on emergency evacuation and safety equipment and their equivalents. (Refer to Circular No. 1-008.) ✓

- (c) Outline of inspection

The outline of procedures for inspection for a supplemental type design shall be described below.

Procedures for substantiation, documents for submission and timing for submission, attendance to the test, necessity of ground test and flight test, schedule and others shall be decided after advance coordination regarding the inspection with inspector in charge.

- a. Evaluation of design

The certificate or approval (STC or its equivalents) issued by a foreign state or compliance checklist, and other documents submitted shall be examined to confirm substantiation status for compliance with the requirements. ✓

- b. Inspection of the manufacturing process

- The concrete method of the participation to the manufacturing process by the authority of the State of Manufacture, manufacturing methods by the manufacturer, inspection methods (including special processes), management of tool and quality assurance shall be reviewed.

- The inspection requirements of the manufacturer and the authority of the State of Manufacture for export to Japan shall be reviewed.

(Note) Airworthiness tags (FAA Form 8130-3, EASA Form 1 and their equivalents) designated by the State of Manufacture shall be attached to the parts to be used. ✓

- c. Inspection on current condition

Inspection on configuration after completion, ground test and flight test shall be conducted, as necessary. ✓

- d. Others

In case Flight Manual is changed, the contents of the change in Flight Manual submitted shall be examined and approved. ✓

(Note) When the supplemental type design is applicable to one or more types of aircraft, substantiation for compliance with the applicable standards through documents or tests, and inspection for manufacturing process and current condition after completion shall be required for each type, if necessary.

- (d) Issuance of certificate



When the supplemental type design is deemed compliant with the applicable standards, a supplemental type certificate shall be sent to the authority of the State of Design by the Civil Aviation Bureau.

- a. An applicant has demonstrated conformity to the applicable standards in Japan.
- b. The authority of the State of Design have, to the Civil Aviation Bureau, certified conformity to the applicable standards of our country, by attaching the documents additionally required by the Civil Aviation Bureau.
- c. The authority of the designing country have issued an additional type design approval.

Following matters shall be entered in remarks column of the certificate.

- a. Classification of work for aircraft modification by supplemental type design concerned (minor repair, minor alteration or major alteration)
- b. Certificate number of the foreign state concerned, if the supplemental type design is certificated by a foreign state.
- c. Other necessary matters

#### 4. Change of Supplemental Type Design

##### 4-1 Procedures for change of supplemental type design

- (a) Supplemental type design change of which approval and other acts have not been granted by a foreign state which is a contracting state of the Convention on International Civil Aviation (Generally, changes of STC designed by domestic organization by themselves shall fall under this article.)

Any person who has obtained a supplemental type certificate shall, when he or she intends to change the certificated design concerned, obtain approval from the Minister of Land, Infrastructure, Transport and Tourism. (Article 13-(2), paragraph 3 of the Law)

In addition, as for the following minor change of the supplemental type design, submission may be acceptable.

- (1) Installation, movement and removal of cabin equipment, galley equipment or small equipment which does not affect the emergency escape and the safety of crews and passengers.
  - (2) Minor configuration change of cabin interior without its material change
  - (3) Changes of entertainment system software
  - (4) Change of marking and placard not falling under Circular No. 1-008.
  - (5) Correction of obvious errors, addition of notes, the clarification of procedures, etc. on the attached drawing and so on.
- (b) Supplemental type design change of which approval and other acts have been granted by a foreign state which is a contracting state of the Convention on International Civil Aviation (Generally, changes of STC designed by foreign organization by themselves and its approval has already accepted by said foreign government shall fall under this article.)

The authority of the State of Design (including those having been delegated) has approved or must approve the said supplemental type design change. And then, according to the effect of

- 3) changes in entertainment system software and
- 4) changes in marking and placards do not fall under Circular No. 1-008.

b. Supplemental Type Design changes which must be notified to the Civil Aviation Bureau

For supplemental type design changes falling under neither a or c, outline of supplemental design changes and compliance with standards of said state and Japan must be notified from the authority of the State of Design to the Civil Aviation Bureau. However, if no questions arise, approval shall be considered given by the Civil Aviation Bureau, in principle.

c. Supplemental Type Design changes need not to be notified to the Civil Aviation Bureau

For changes which do not have a significant effect on the airworthiness including weight, strength, function of the power unit, flight performance and so on, notification to the Civil Aviation Bureau from authority of the State of Design shall not be required. Approval shall be considered given by the Civil Aviation Bureau, in principle.

4-2 Submitted documents

The documents of matters which shall be affected by the change concerned shall be submitted according to paragraphs 3-1 (1) and 3-2 (1).

4-3 Outline of inspection, etc.

(1) Application

An application shall be made according to paragraphs 3-1 (2) (a) and 3-2 (2) a.

(2) Certification basis

The standards applied to the change concerned shall be the same as that applied to the supplemental type certificate concerned.

(3) Outline of inspection

Type design in the area which is affected by the change concerned shall be inspected according to paragraphs 3-1 (2) (c) and 3-2 (2) (c).

(4) Issuance of certificate

When the change of the supplemental type design is determined compliance with the applicable standards, new supplemental type certificate shall be issued to the applicant.

5. Procedures for Supplemental Type Certificate

5-1 Instructions for completing application forms for supplemental type certificate and for change of supplemental type design and submission forms for change of supplemental type design, and for submitting the completed form and documents

(1) Instructions for completing application forms, etc.

(a) Application form for supplemental type certificate

- a. Address of applicant or location of a head office, and name or firm of applicant The above items shall be entered about a person who intends to obtain the supplemental

type certificate concerned.

In case of an application by a representative, the above items pertinent to the representative shall also be entered.

- b. Classification, type, type certificate number, serial number, airworthiness category of the aircraft, applicable standards under Article 10, paragraph 4 of the Law, name or firm of the designer, address of the designer, name or firm of the manufacturer, address of the manufacturer

The above items must be consistent with the aircraft to be inspected and the items described in the documents to be submitted during inspection.

- c. Name or firm of the designer who performs the supplemental type design, address of the designer, name or firm of the manufacturer and address of the manufacturer

The above items must be consistent with the said supplemental type design and items described in the documents to be submitted during inspection.

- d. Contents of supplemental type design

The contents of the supplemental type design shall be described simply.

- e. Proposed location of inspection

Proposed location of inspection should be written in the remarks column.

- (b) Application form for change of supplemental type design

The form shall be prepared and submitted according to (a) above.

- (c) Submission form for change of supplemental type design

- a. Address or location of a head office, and name of applicant

- b. Classification, type, type certificate number, serial number and airworthiness category of the aircraft, applicable standards under Article 10 paragraph 4 of the Law, name and address of the designer of the aircraft and name and address of the manufacturer of the aircraft

- c. Name and address of the designer and manufacturer who performs the change of supplemental type design

- d. Reason of change

The reason that the change of supplemental type design is necessary shall be described.

- e. Contents of change

The contents of the change of the supplemental type design and the reason why the application is not required shall be described.

- (2) Instructions for submitting the completed forms and documents

- (a) If the proposed location of inspection is located in foreign state, the address shall be:  
Airworthiness Engineer, Airworthiness Division, Aviation Safety and Security  
Department, Civil Aviation Bureau, Ministry of Land, Infrastructure, Transport and  
Tourism  
2-1-3 Kasumigaseki, Chiyoda-ku, Tokyo  
TEL: 03-5253-8735

- (b) If the proposed location of inspection is located in Niigata, Nagano, Shizuoka and



eastward, the address shall be:

Inspection and Crew Section, Operations Division,  
Air Traffic Service and Safety Department,  
Tokyo Regional Civil Aviation Bureau  
Kudan Daini Godochosha  
1-1-15 Kudan-Minami , Chiyoda-ku, Tokyo, 102-0074  
TEL: 03-5275-9292

- (c) If the proposed location of inspection is located in Toyama, Gifu, Aichi and westward, the address shall be:

Inspection and Crew Section, Operations Division,  
Air Traffic Service and Safety Department,  
Osaka Regional Civil Aviation Bureau  
No.4 Building of Osaka Godochosha  
4-1-76 Otemae, Chuo-ku, Osaka-shi, Osaka-fu, 540-8559  
TEL: 06-6949-6211

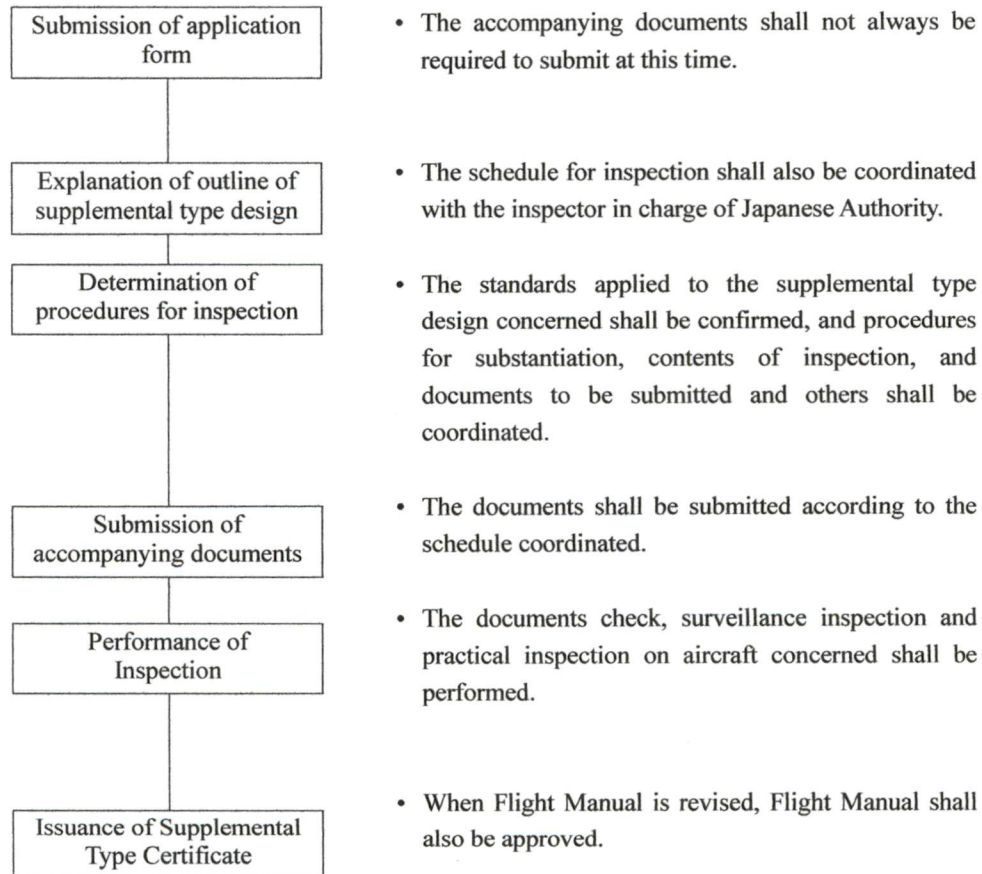
(Note) In principle, an application form and a submission form for change of supplemental type design shall be submitted to Regional Civil Aviation Bureau Office where an application form of original supplemental type design was submitted.

(Note) Concerning the application for which a supplemental type design certification has been obtained and granted by a foreign government which are contracting states of the Convention on International Civil Aviation, it shall be the addressee from (a) to (c) having jurisdiction over the proposed location of inspection, and it shall be submitted to the Airworthiness Engineer, Airworthiness Division, Aviation Safety and Security Department, Civil Aviation Bureau, Ministry of Land, Infrastructure, Transport and Tourism through the authority of said foreign country.

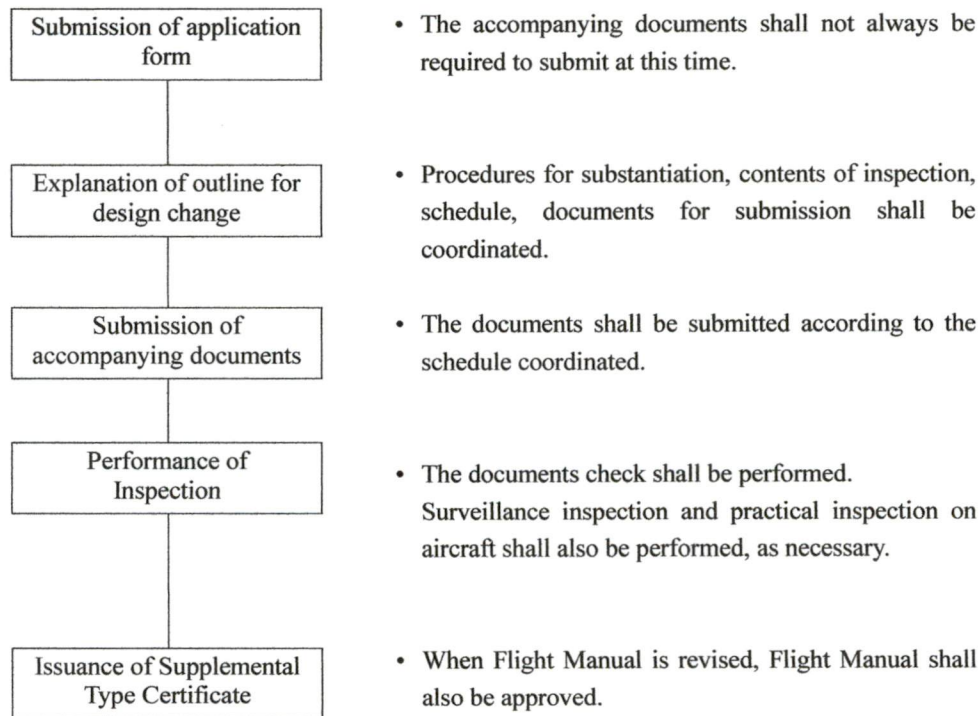


5-2 Flow chart regarding submission of application form and documents, inspection and issuance of supplemental type certificate

(1) Supplemental type certificate



(2) Approval for change of supplemental type design



6. Other Necessary Activities charged to the Holder of a Supplemental Type Certificate

The holder of a supplemental type certificate needs to:

- (1) Obtain approval for change of supplemental type design. (Article 13-2 of the Law)
- (2) Collect information on malfunctions and its equivalents relating to the area concerned to which alteration had been made and provide those information to the relevant authorities.
- (3) Implement corrective action such as engineering activities for malfunctions and its equivalents caused by defect in design and manufacture.
- (4) Maintain and keep data (design data, drawings, test reports, inspection records for aircraft products).
- (5) Produce, update and maintain manuals and provide to aircraft users
- (6) Continue airworthiness (including to provide and update the maintenance procedures concerning instructions for continued airworthiness)
- (7) Provision of the procedure manual for alteration (repair) to users
- (8) Methods to provide technical documents should preferably be listed on the web site which enables access online by the Civil Aviation Bureau, and can also enable provision by print or electronic media such as CD-ROMs.

Aero Design Ltd.



9888A Malaspina Road  
Powell River, BC, V8A 0G3  
Phone: 604-483-2376  
Fax: 604-483-2372  
www.aerodesign.ca

FMS906.90

## ROBINSON R44, R44 II

### ROTORCRAFT FLIGHT MANUAL SUPPLEMENT for the INSTALLATION of the AERO DESIGN QUICK RELEASE CARGO BASKET

Canadian Supplemental Type Certificate No. SH10-48  
FAA Supplemental Type Certificate No. SR02291NY  
EASA Supplemental Type Certificate No. 10050758

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory.

Section V and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Robinson R44 or R44 II when fitted with the Quick Release Cargo Basket Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement, refer to the Approved Flight Manual and other approved Flight Manual Supplements.



### Table of Contents

I	Limitations	3
II	Normal Procedures	3
III	Emergency Procedures	3
IV	Performance	3
V	Weight and Balance	4
VI	Installation / removal instructions	6

### Record of Revisions

Revision	Issue Date	Pages Revised	Date Inserted	By
0	22 Sept 2010	Original Issue		
1	27 May 2014	1,2		
2	14 Oct 2016	1,2,5		



## **I LIMITATIONS**

1. Only one basket may be installed at a time, on the right or left side.
2. The maximum load in the AERO Design Ltd. Quick Release Cargo Basket is 175 lb.
3. Flight operations limited to VFR conditions with AERO Design Ltd. Cargo Basket installed.
4. Maximum  $V_{NE}$  of 110 KIAS with either basket installed. Use R44 placarded  $V_{NE}$  or 110 KIAS whichever is lower.

## **II NORMAL PROCEDURES**

1. Pre-flight inspections:
  - a) Ensure that all cargo stored in the cargo basket is properly tied down and secured for flight.
  - b) Ensure that the lid of cargo basket is closed and secured.
  - c) Ensure the basket is locked in position on the beams. Pull up on the aft end of the basket to check.

### **CAUTION**

It is possible to exceed the lateral centre of gravity limits of the rotorcraft under some loading conditions. Pilots must ensure that lateral C of G is within limits when loading the basket.

## **III EMERGENCY PROCEDURES**

No change from basic Approved Flight Manual.

### **CAUTION:**

The rotorcraft glide angle is steeper than that of the basic helicopter when the AERO Design Ltd. Cargo Basket is installed.

## **IV PERFORMANCE**

Cruise performance and range will be reduced by approximately 14% percent with the cargo basket installed on either side.

Climb performance will be reduced by up to 300 fpm with the cargo basket installed on either side.

## V WEIGHT AND BALANCE

- The following weight and balance is for the quick release cargo basket configuration, installed in accordance with drawing 90601.

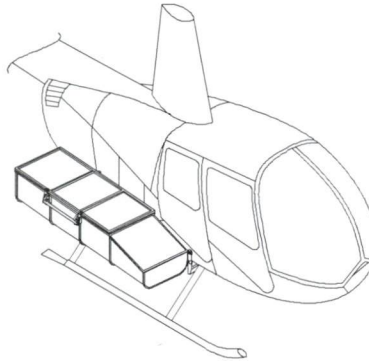


Figure 1 –Quick Release Cargo Basket Configuration

Standard P/N <sup>1</sup>	Description	Weight	Longitudinal		Lateral <sup>2</sup>	
		lb	arm in	moment in-lb	arm in	moment in-lb
90610-01-XX	Basket	41.8	112.4	4698.3	34.4	1437.9
90602-01-XX	Mounting Provisions	11.6	101.3	1174.5	7.2	84.0
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>53.4</b>	<b>110.0</b>	<b>5872.8</b>	<b>28.5</b>	<b>1521.9</b>
	Maximum Cargo <sup>3</sup> (centred in basket)	175.0	112.4	19670.0	34.4	6020.0

Metric P/N <sup>1</sup>	Description	Weight	Longitudinal		Lateral <sup>2</sup>	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
90610-01-XX	Basket	18.9	2855	53999	874	16526
90602-01-XX	Mounting Provisions	5.3	2552	13396	184	965
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>24.2</b>	<b>2789</b>	<b>67394</b>	<b>724</b>	<b>17491</b>
	Maximum Cargo <sup>3</sup> (centred in basket)	80.0	2855	228397	874	69901

The following weight and balance is for aircraft equipped with the Robinson updated landing gear configuration.

Standard P/N <sup>1</sup>	Description	Weight	Longitudinal		Lateral <sup>2</sup>	
		lb	arm in	moment in-lb	arm in	moment in-lb
90610-01-XX	Basket	41.8	112.4	4698.3	34.4	1437.9
90603-01-XX	Mounting Provisions	12.4	101.1	1253.9	6.8	84.0
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>54.2</b>	<b>109.8</b>	<b>5952.2</b>	<b>28.1</b>	<b>1521.9</b>
	Maximum Cargo <sup>3</sup> (centred in basket)	175.0	112.4	19670.0	34.4	6020.0

Metric P/N <sup>1</sup>	Description	Weight	Longitudinal		Lateral <sup>2</sup>	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
90610-01-XX	Basket	18.9	2855	53999	874	16526
90603-01-XX	Mounting Provisions	5.6	2545	14279	172	965
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>24.5</b>	<b>2784</b>	<b>68278</b>	<b>713</b>	<b>17491</b>
	Maximum Cargo <sup>3</sup> (centred in basket)	80.0	2855	228397	874	69901

<sup>1</sup> -XX indicates side. -01 is RH, -02 is LH.

<sup>2</sup> Lateral arm is negative on LH side.

<sup>3</sup> Longitudinal and Lateral moment arms are given only for the center of the Cargo Basket. Due to the length and position of the basket, some loading arrangements may require that actual moment arms be measured, to determine the correct moments about the center of gravity.

**CAUTION:**

It is possible to exceed lateral CG limits in some configurations.

## VI INSTALLATION / REMOVAL INSTRUCTIONS

The basket is installed in accordance with drawing 90601. The mounting provisions are installed in accordance with drawing 90602. Removal of the basket leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of basket and weight and balance amendment is required when basket is installed or removed.

1. Installation - Refer to Figure 2 and 3.
  1. At forward end of basket, set upper attachment fitting into keyway in forward beam. Allow basket to hang from fitting, rest aft end on ground.
  2. Raise aft end of basket to aft beam, sliding basket aft, and lift until lower attachment fitting hits stop over keyway.
  3. Push fitting into lower keyway, ensure top fitting enters top keyway, and slide basket down until locked.

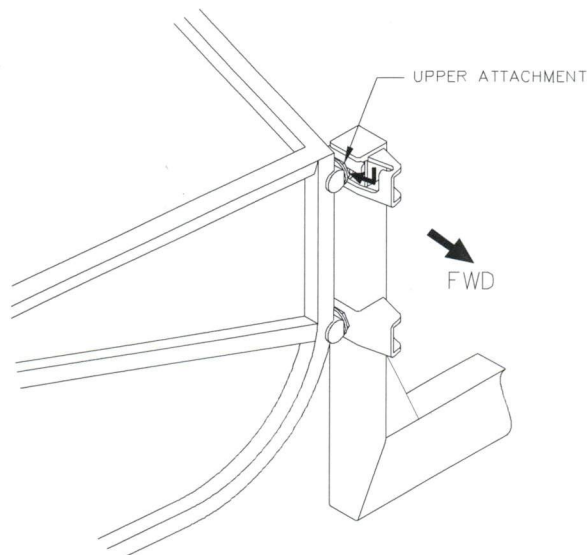


Figure 2 – Basket Forward Attachment



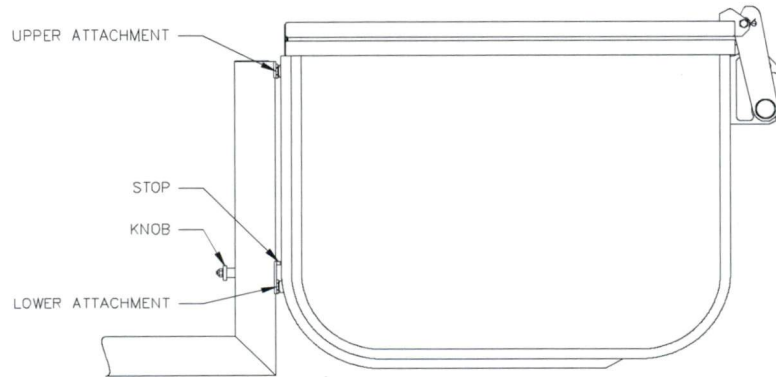


Figure 3 – Basket Aft Attachment

2. Removal - Refer to Figure 2 and 3.
  1. Pull knob at bottom end of aft beam and lift basket until attachment fittings are free of keyways. Rest aft end of basket on ground.
  2. Slide basket forward and lift attachment fitting out of keyway on forward beam.



Transport Canada Transports Canada

FROM: ROUTING SYMBOL  
DE: SYMBOLE D'ACHEMINEMENT

Suite 820 - 800 Burrard Street  
Vancouver, B.C. V6Z 2J8  
Designator: \_\_\_\_\_

TAMI

To

Mr. Jeff Clarke

Aero Design Ltd.

9888 A Malaspina Road

Powell River, BC

V8A 0G3



PB0315061617  
000146 RAJK8  
1017 135526



171018 00:22 6292

PLEASE USE ROUTING SYMBOL ON ALL CORRESPONDENCE

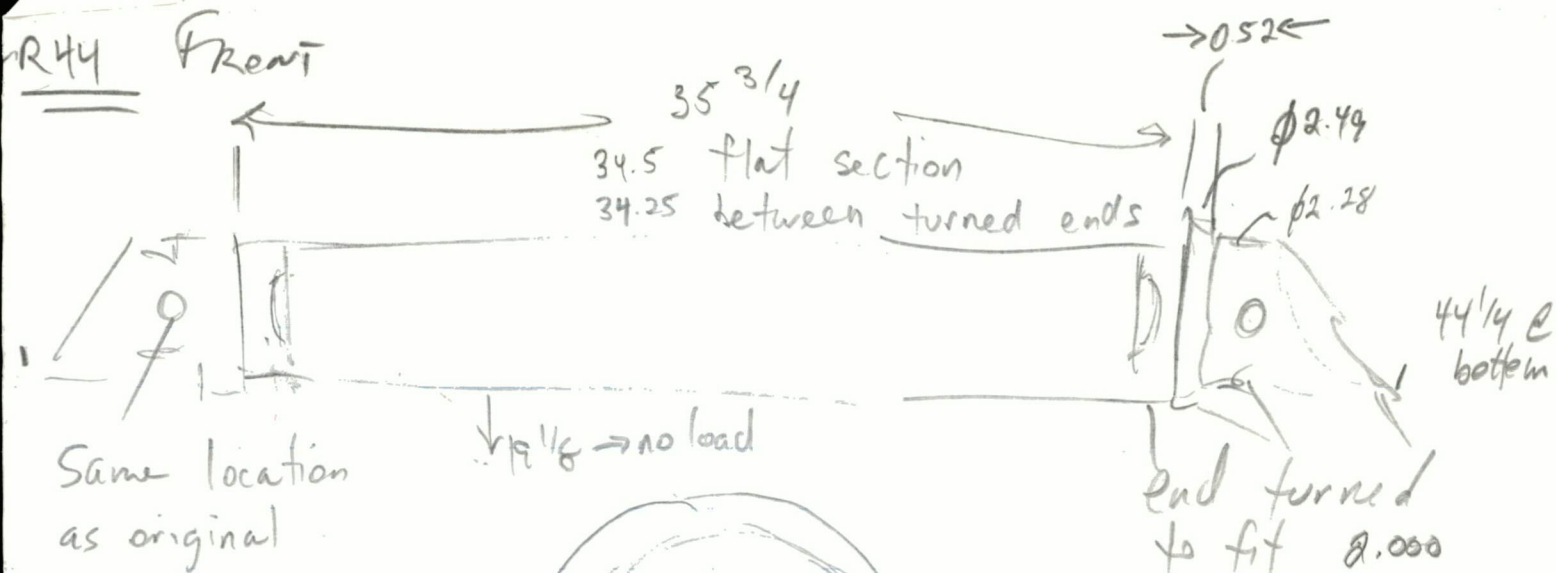
PRIÈRE D'INDIQUER VOTRE SYMBOLE D'ACHÈNEMENT SUR  
TOUTE CORRESPONDANCE



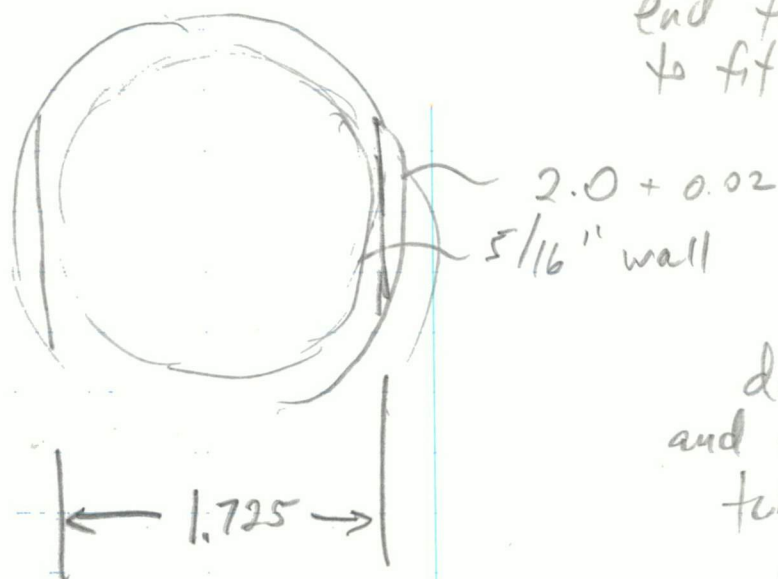
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Envelope paper from well-managed forests,  
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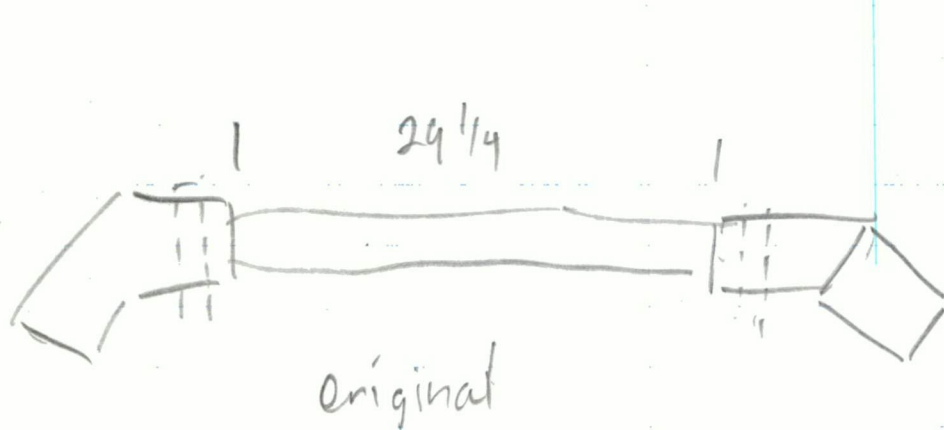


Cross tube  
same position as  
original



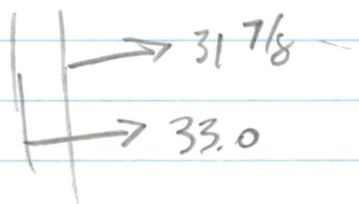
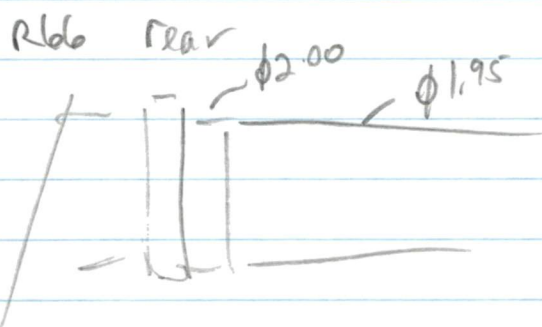
down tube  
and corner steel  
tubes.

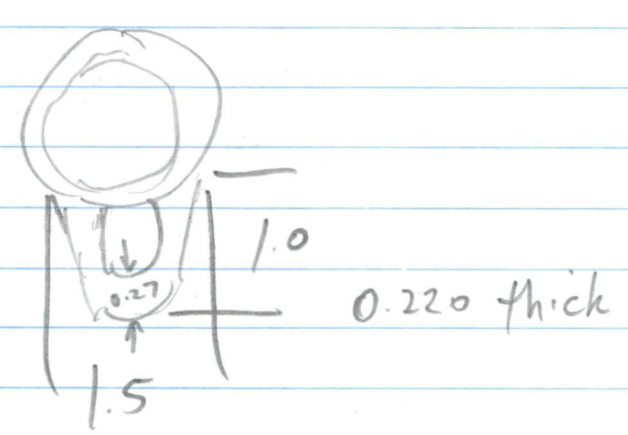
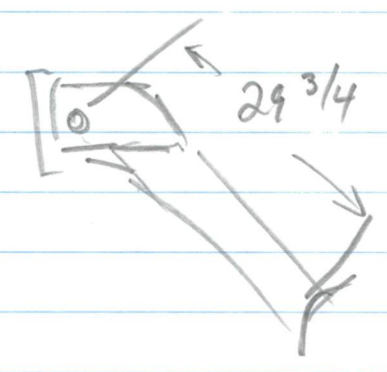
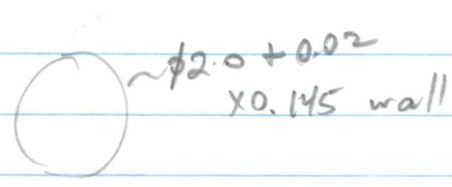
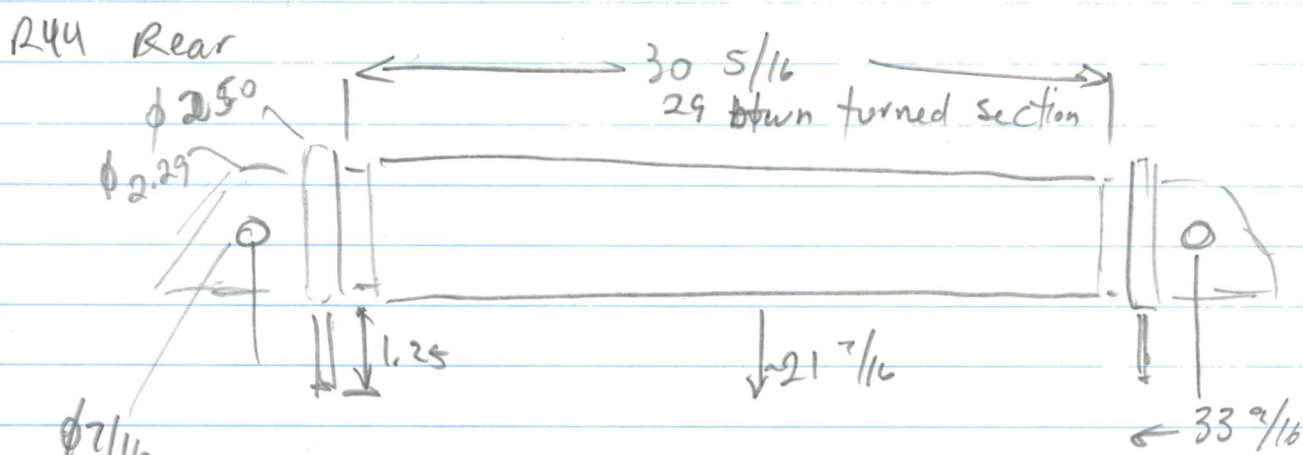
center Aluminum



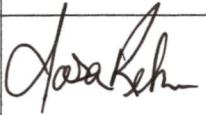
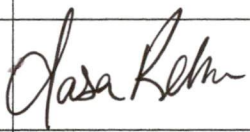
Our clamps will be on center section of new tube







## CONFORMITY INSPECTION RECORD

Applicant	Aeronautical Product				Title of Change
Aero Design Ltd.	Make Robinson	Model R44	Serial No. 11734	Registration C-GCFD	Quick Release Mounting Provisions Updated Landing Gear Configuration
Drawing No.	Applicant's Inspector Signature	Date	T.C. Inspection Signature	Date	Findings
Installation					
90603, Rev. 0 (Provisions Installation, New Landing Gear)		6 Jan 17			See additional information 2) & 3)
Fabrication					
90640, Rev. 0 (Landing Gear Adapter Fabrication)		6 Jan 17			See additional information 1)

### APPLICANT'S ATTESTATION

I hereby confirm that the prototype installation for the subject

☒ MODIFICATION,

☐ REPAIR,

☐ TSO/AP-TC ARTICLE

is in conformity with the applicable installation drawing(s) listed above  
and that necessary ground tests have been carried out.

[Please check (✓) the applicable box.]

#### Additional Information:

- 1) No surface finish applied to adapters, does not affect installation.
- 2) Landing gear leg fairings could not be removed per operator request on fit-up aircraft. This prevented installation of the mounting beams as shown on 90603. Attachment clamps installed in accordance with 90603. Cross tubes visually inspected at clamp locations following removal, minor marking in paint wiped off with fingers, no remaining marks or scratches. Clamp up on cross tubes with adapters no different than original 90602 configuration. Adapters checked for indication of binding on socket head cap screw, none found.
- 3) Excessive thread protrusion noted on AN4-12A bolt. Changed to AN4-11A, maintains 2 threads beyond locking. Applies to 90602 and 90603.

Signature: \_\_\_\_\_

 11795441

### TC INSPECTION

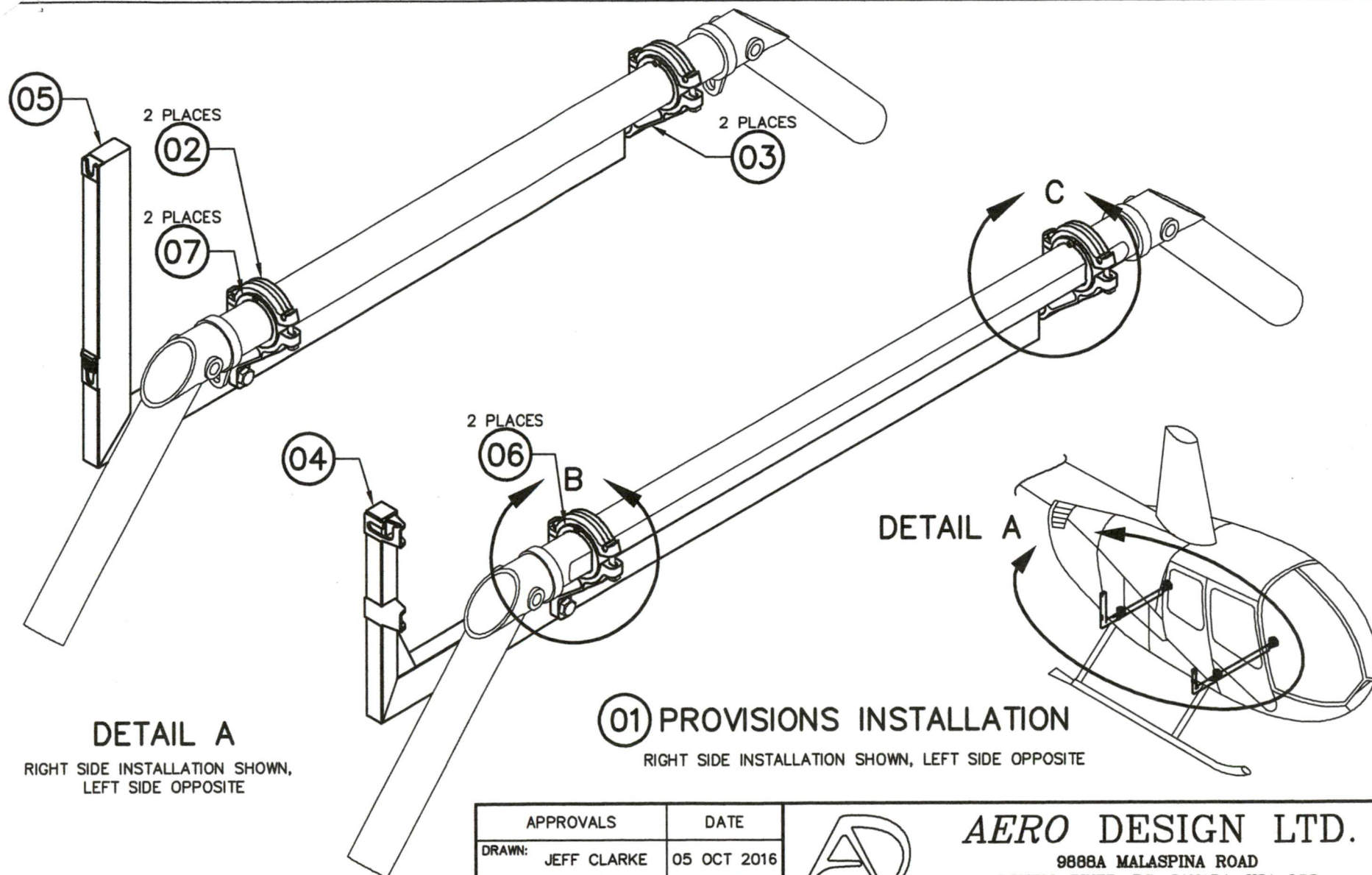
☐ ACCEPTABLE

☐ UNACCEPTABLE

Remarks:

Signature: \_\_\_\_\_





### DETAIL A

RIGHT SIDE INSTALLATION SHOWN,  
LEFT SIDE OPPOSITE

### 01 PROVISIONS INSTALLATION

RIGHT SIDE INSTALLATION SHOWN, LEFT SIDE OPPOSITE

APPROVALS	DATE
DRAWN: JEFF CLARKE	05 OCT 2016
CHECKED: JASON REKVE	05 OCT 2016

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES.  
TOLERANCES ON:

DECIMALS	ANGLES
X.XXX $\pm 0.010$	$\pm 1/2^\circ$
X.XX $\pm 0.03$	
X.X $\pm 0.1$	



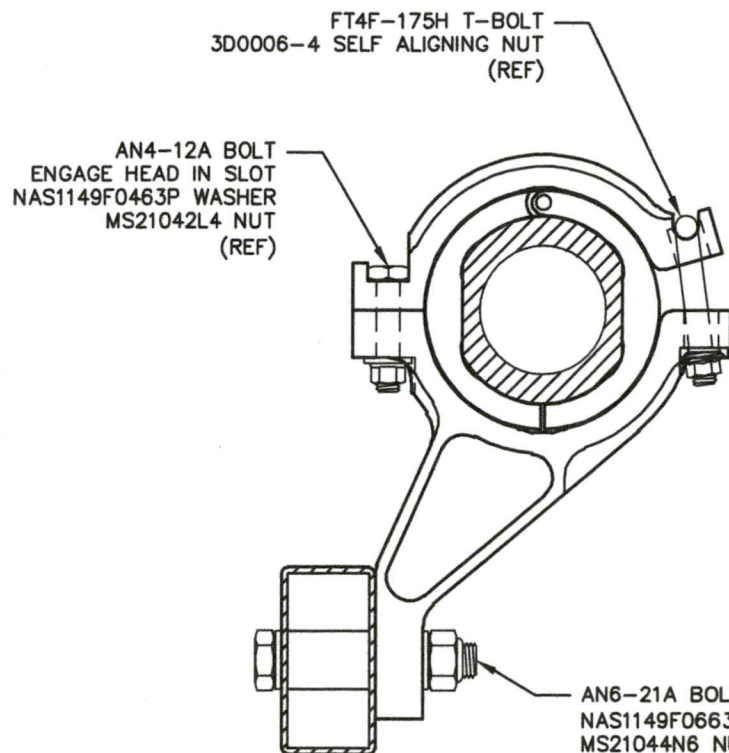
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TEL: 604.483.2376 [www.aerodesign.ca](http://www.aerodesign.ca)

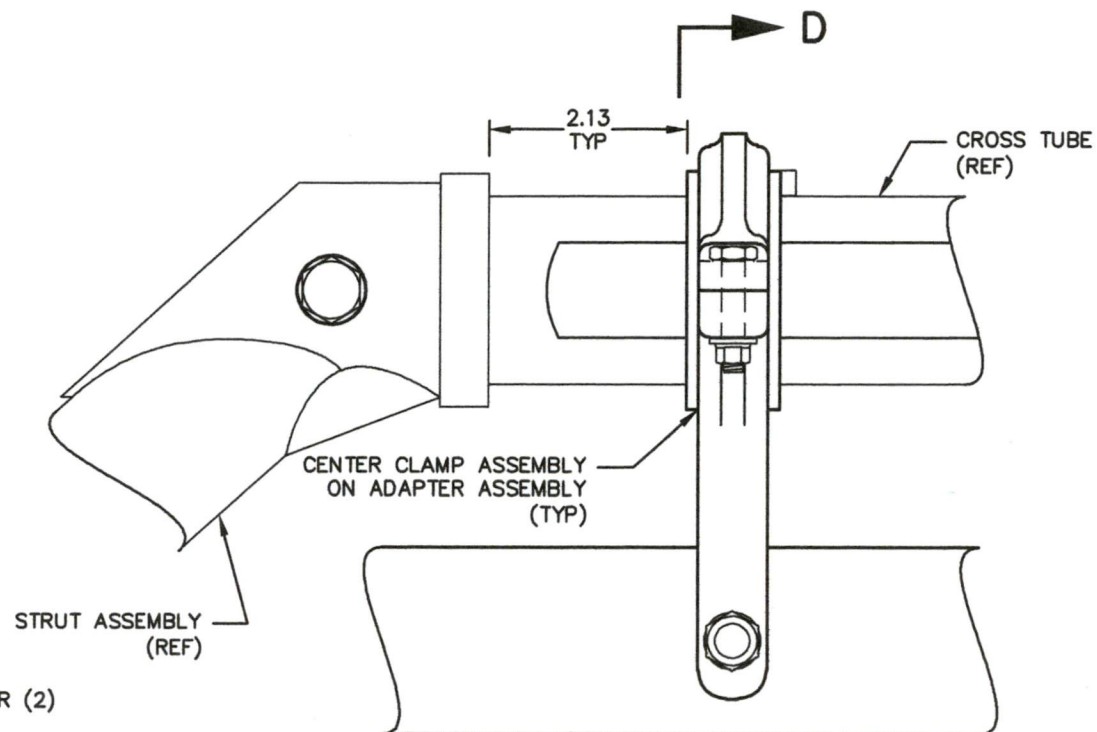
ROBINSON R44, R44 II – REVISED LANDING GEAR  
QUICK RELEASE CARGO BASKET  
ATTACHMENT PROVISIONS INSTALLATION

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.
SHEET 1 OF 4	A4	90603	0





**SECTION D-D**  
LOOKING INBOARD FROM RIGHT



**DETAIL B**  
ATTACHMENT CLOSE TO BASKET, LOOKING AFT  
RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE  
FORWARD INSTALLATION SHOWN; AFT INSTALLATION SIMILAR

APPROVALS	DATE
DRAWN: JEFF CLARKE	05 OCT 2016
CHECKED: JASON REKVE	05 OCT 2016

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES.  
TOLERANCES ON:  
DECIMALS      ANGLES  
X.XXX ±0.010      ±1/2°  
X.XX ±0.03  
X.X ±0.1

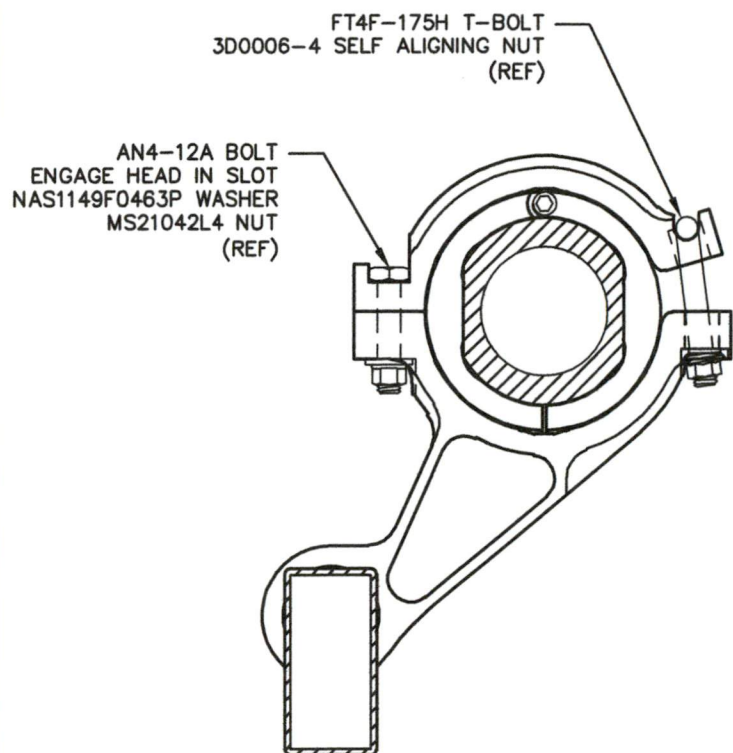


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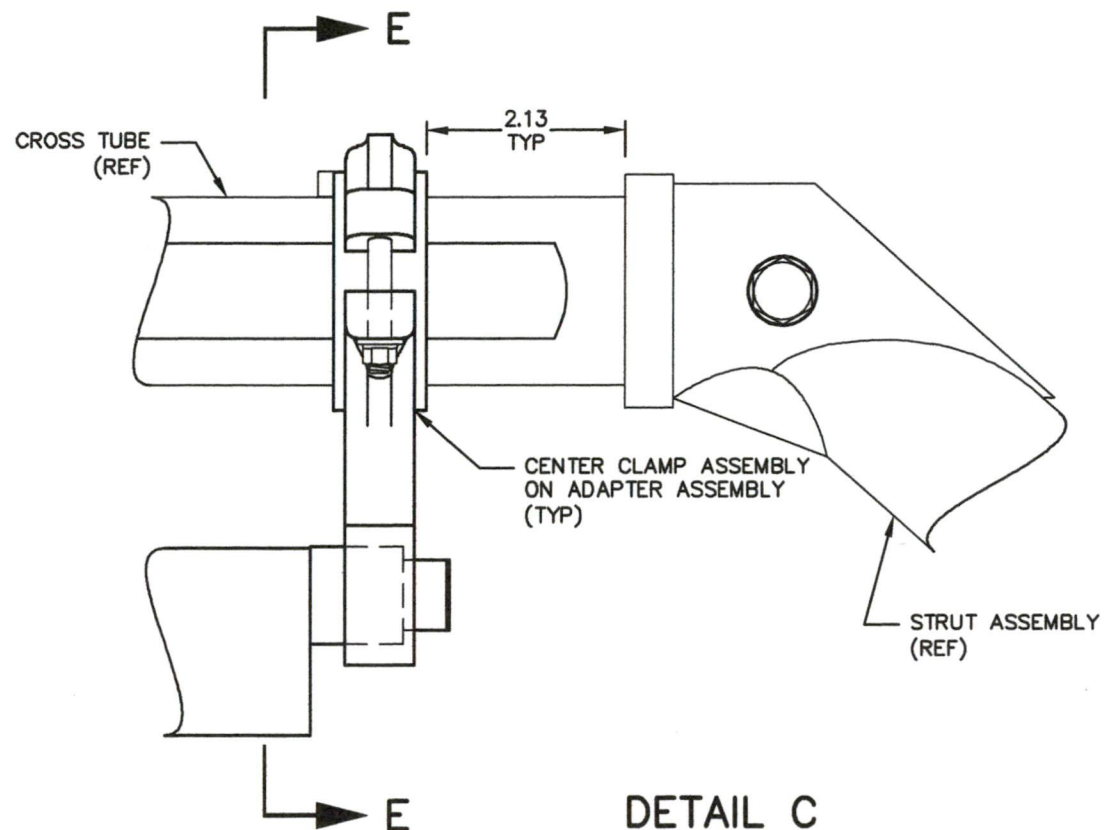
**ROBINSON R44, R44 II – REVISED LANDING GEAR  
QUICK RELEASE CARGO BASKET  
ATTACHMENT PROVISIONS INSTALLATION**

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.	
SHEET 2 OF 4	A4	90603	0	




### SECTION E-E

LOOKING OUTBOARD FROM RIGHT



### DETAIL C

ATTACHMENT FAR FROM BASKET, LOOKING AFT  
RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE  
FORWARD INSTALLATION SHOWN; AFT INSTALLATION SIMILAR

APPROVALS		DATE			<b>AERO DESIGN LTD.</b> 9888A MALASPINA ROAD POWELL RIVER, BC, CANADA, V8A 0G3 TEL: 604.483.2376 <a href="http://www.aerodesign.ca">www.aerodesign.ca</a>	
DRAWN:	JEFF CLARKE	05 OCT 2016				
CHECKED:	JASON REKVE	05 OCT 2016				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS                      ANGLES X.XXX    ±0.010                      ±1/2° X.XX     ±0.03 X.X      ±0.1				ROBINSON R44, R44 II – REVISED LANDING GEAR QUICK RELEASE CARGO BASKET ATTACHMENT PROVISIONS INSTALLATION		
NOT TO SCALE		DWG. SIZE	DWG. NO.	REV.		
SHEET 3 OF 4		A4	90603	0		



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REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	ORIGINAL ISSUE - CREATED FROM 90602 REV. 1		

NOTES:

1. THIS INSTALLATION APPLIES TO HELICOPTERS FITTED WITH LANDING GEAR ASSEMBLY - STANDARD (C014-27) OR LANDING GEAR ASSEMBLY - EXTENDED (C014-30). FOR EARLY MODEL LANDING GEAR, REFER TO DRAWING 90602. THIS INSTALLATION IS NOT COMPATIBLE WITH FIXED OR POP-OUT FLOATS.
2. STRUT FAIRINGS (C082-XX) MUST BE REMOVED IF INSTALLED. REFER TO R44 MAINTENANCE MANUAL, SECTION 5.410. FORWARD CROSS TUBE COVER (C475-5) MUST BE REMOVED. LEAVE CHANNELS (C388-3) IN PLACE.
3. REMOVAL OF BEAMS LEAVING CLAMPS IN PLACE IS AN APPROVED CONFIGURATION FOR FLIGHT.
4. SEE FLIGHT MANUAL SUPPLEMENT, FMS906.90, FOR LIMITATIONS ON HELICOPTER OPERATIONS WITH CARGO BASKET INSTALLED.
5. SEE INSTRUCTIONS FOR CONTINUED AIRWORTHINESS, ICA906.91, FOR MAINTENANCE INFORMATION.

## WEIGHT AND BALANCE

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
02/03	CLAMPS (4)	1.6	99.7	159.5	-0.7	-1.0
04/05	BEAMS (FORWARD AND AFT)	10.0	101.5	1015.0	8.5	85.0
06/07	ADAPTERS (4)	0.8	99.2	79.4	0.0	0.0
01	PROVISIONS INSTALLATION (TOTAL)	12.4	101.1	1253.9	6.8	84.0

2	2	MS21044N6		NUT
4	4	NAS1149F0663P		WASHER
2	2	AN6-21A		BOLT
2	2	90640-02	07	AFT ADAPTER ASSEMBLY
2	2	90640-01	06	FORWARD ADAPTER ASS'Y
1	1	90631-01-00	05	AFT BEAM
1		90630-01-02	04	FORWARD BEAM (LH)
	1	90630-01-01	04	FORWARD BEAM (RH)
2		90620-02-02	03	CLAMP ASSEMBLY (FAR, LH)
	2	90620-02-01	03	CLAMP ASSEMBLY (FAR, RH)
2	2	90620-01-00	02	CLAMP ASSEMBLY (CLOSE)
		90603-01-02	01	PROVISIONS INST'N (LH)
		90603-01-01	01	PROVISIONS INST'N (RH)
-02	-01	PART NO.	ITEM	DESCRIPTION
QTY.	LIST OF MATERIALS			

APPROVALS	DATE
DRAWN: JEFF CLARKE	05 OCT 2016
CHECKED: JASON REKVE	05 OCT 2016

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES.  
TOLERANCES ON:  
DECIMALS ANGLES  
X.XXX ±0.010 ±1/2"  
X.XX ±0.03  
X.X ±0.1



## AERO DESIGN LTD.

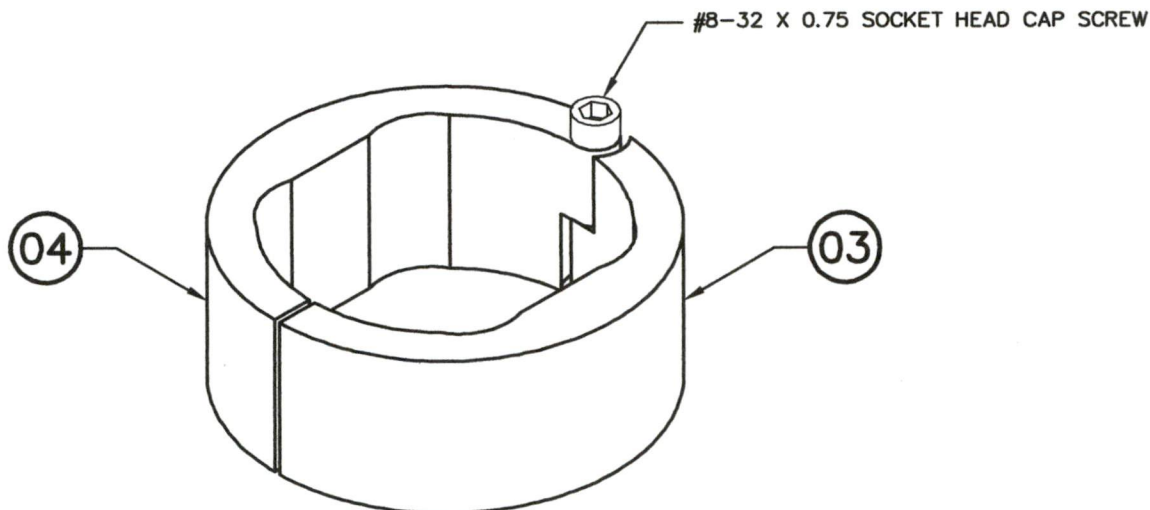
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POWELL RIVER, BC, CANADA, V8A 0G3  
TEL: 604.483.2376 [www.aerodesign.ca](http://www.aerodesign.ca)

ROBINSON R44, R44 II - REVISED LANDING GEAR  
QUICK RELEASE CARGO BASKET  
ATTACHMENT PROVISIONS INSTALLATION

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.	
SHEET 4 OF 4	A4	90603	0	

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REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE		



## (01) FORWARD ADAPTER ASSEMBLY

### NOTES

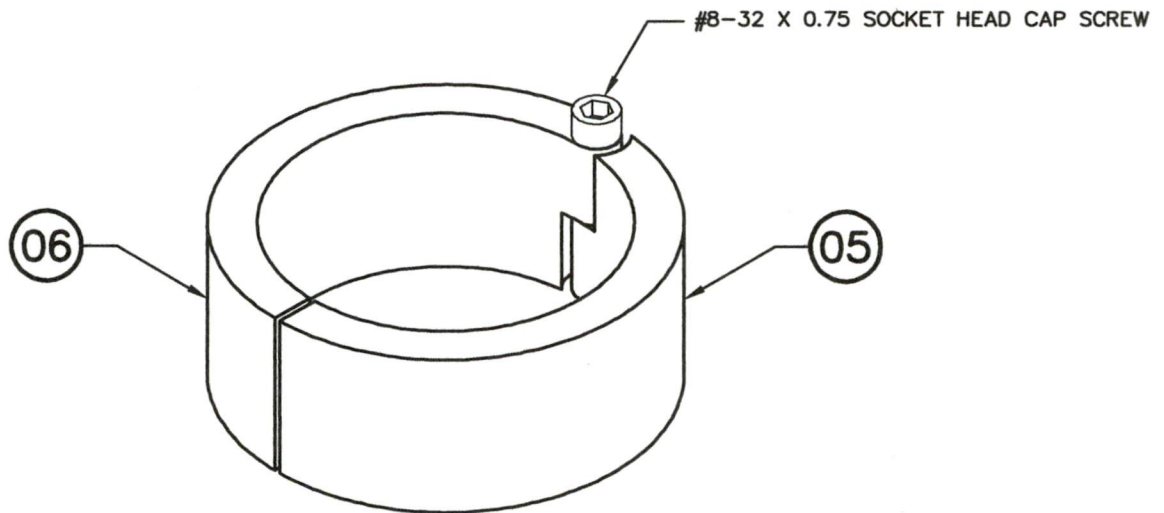
- DO NOT TIGHTEN #8-32 SCREW, PARTS MUST BE FREE TO ROTATE.

1	#8-32 X 0.75		SOCKET HEAD CAP SCREW	STAINLESS STEEL	COMMERCIAL	
1	90640-04	04	FORWARD CLAMP - THRU	6061-T6 ALUMINUM	QQ-A-200/8	1.5 X 2 BAR
1	90640-03	03	FORWARD CLAMP - THREADED	6061-T6 ALUMINUM	QQ-A-200/8	1.5 X 2 BAR
	90640-01	01	FORWARD ADAPTER ASSEMBLY			
QTY	PART NO.	ITEM	DESCRIPTION	MATERIAL	MATERIAL SPEC	STOCK SIZE

### LIST OF MATERIALS

<div> <div>APPROVALS</div> <div>DATE</div> </div> <div> <div>DRAWN: JEFF CLARKE</div> <div>05 OCT 2016</div> </div> <div> <div>CHECKED: JASON REKVE</div> <div>05 OCT 2016</div> </div>	<div> <div>UNLESS OTHERWISE SPECIFIED</div> <div>DIMENSIONS ARE IN INCHES.</div> <div>TOLERANCES ON:</div> <div> <div>DECIMALS</div> <div>ANGLES</div> </div> <div> <div>X.XXX ±0.010</div> <div>±1/2°</div> </div> <div> <div>X.XX ±0.03</div> <div></div> </div> <div> <div>X.X ±0.1</div> <div></div> </div> </div>		<div> <div>ROBINSON R44, R44 II - REVISED LANDING GEAR</div> <div>QUICK RELEASE CARGO BASKET INSTALLATION</div> <div>LANDING GEAR ADAPTER FABRICATION</div> </div>			
	<div> <div>SCALE 1 : 1</div> <div>SHEET 1 OF 4</div> </div>		<div>DWG. SIZE</div> <div>A4</div>	<div>DWG. NO.</div> <div>90640</div>	<div>REV.</div> <div>0</div>	
			<div> <div>AERO DESIGN LTD.</div> <div>9888A MALASPINA ROAD</div> <div>POWELL RIVER, BC, CANADA, V8A 0G3</div> <div>TEL: 604.483.2376</div> <div>www.aerodesign.ca</div> </div>			






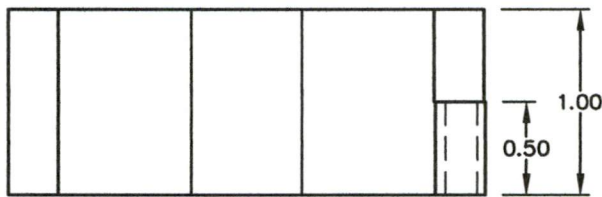
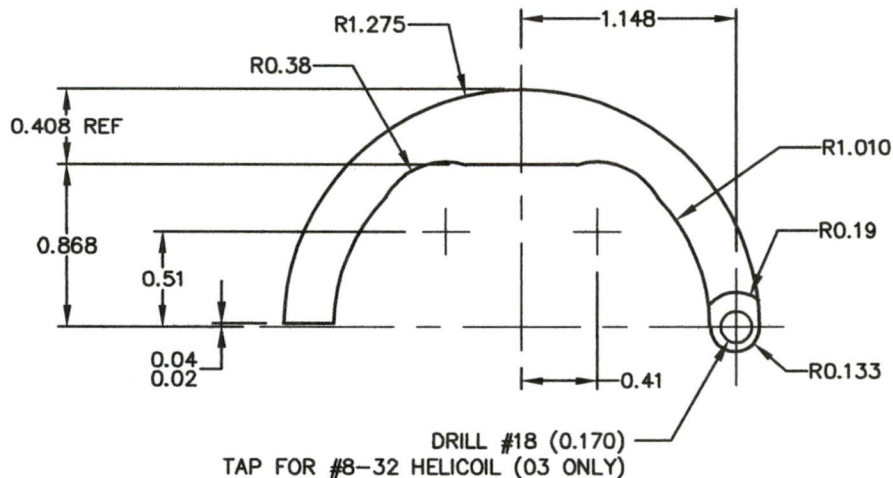
## (02) AFT ADAPTER ASSEMBLY

### NOTES

1. DO NOT TIGHTEN #8-32 SCREW, PARTS MUST BE FREE TO ROTATE.

1	#8-32 X 0.75		SOCKET HEAD CAP SCREW	STAINLESS STEEL	COMMERCIAL	
1	90640-06	06	AFT CLAMP - THRU	6061-T6 ALUMINUM	QQ-A-200/8	1.5 X 2 BAR
1	90640-05	05	AFT CLAMP - THREADED	6061-T6 ALUMINUM	QQ-A-200/8	1.5 X 2 BAR
	90640-02	02	AFT ADAPTER ASSEMBLY			
02	PART NO.	ITEM	DESCRIPTION	MATERIAL	MATERIAL SPEC	STOCK SIZE
QTY	LIST OF MATERIALS					

	APPROVALS		DATE		<b>AERO DESIGN LTD.</b> 9888A MALASPINA ROAD POWELL RIVER, BC, CANADA, V8A 0G3 TEL: 604.483.2376      www.aerodesign.ca			
	DRAWN: JEFF CLARKE		05 OCT 2016					
	CHECKED: JASON REKVE		05 OCT 2016					
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS      ANGLES X.XXX ±0.010      ±1/2" X.XX ±0.03 X.X ±0.1				ROBINSON R44, R44 II – REVISED LANDING GEAR QUICK RELEASE CARGO BASKET INSTALLATION LANDING GEAR ADAPTER FABRICATION			
	SCALE 1 : 1		DWG. SIZE		DWG. NO.		REV.	
SHEET 2 OF 4		A4		90640		0		




③ FORWARD CLAMP – THREADED

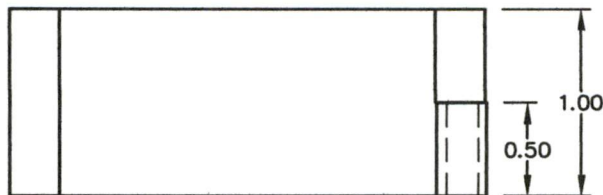
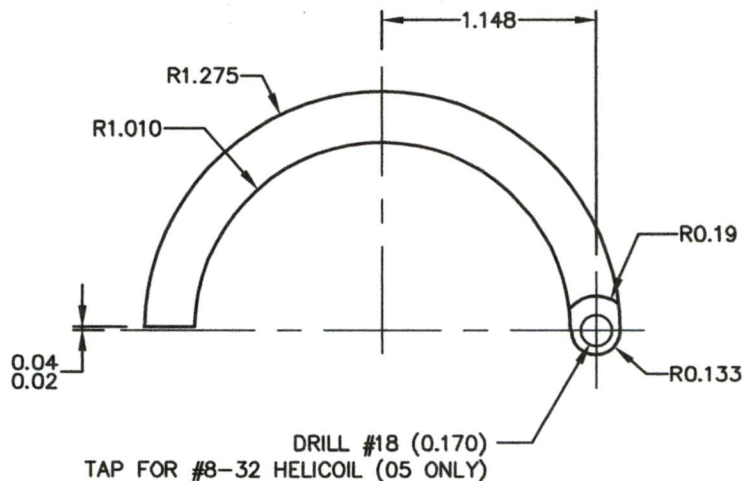
④ FORWARD CLAMP – THRU

#### NOTES

1. REMOVE ALL BURRS AND BREAK SHARP EDGES.
2. THOROUGHLY DEGREASE, ALODINE, PRIME AND PAINT ALL ALUMINUM PARTS PRIOR TO ASSEMBLY.  
ALTERNATE: ANODIZE ALL ALUMINUM PARTS IN ACCORDANCE WITH MIL-A-8625F, TYPE II.

1	3585-2CN164	#8-32 SELF LOCKING HELICOIL				
90640-04	04	FORWARD CLAMP – THRU	6061-T6 ALUMINUM	QQ-A-200/8	1.5 X 2 BAR	
90640-03	03	FORWARD CLAMP – THREADED	6061-T6 ALUMINUM	QQ-A-200/8	1.5 X 2 BAR	
QTY	QTY	PART NO.	ITEM	DESCRIPTION	MATERIAL	MATERIAL SPEC
LIST OF MATERIALS						

APPROVALS		DATE	 <b>AERO DESIGN LTD.</b> 9888A MALASPINA ROAD POWELL RIVER, BC, CANADA, V8A 0G3 TEL: 604.483.2376      www.aerodesign.ca			
DRAWN: JEFF CLARKE		05 OCT 2016				
CHECKED: JASON REKVE		05 OCT 2016				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:			<b>ROBINSON R44, R44 II – REVISED LANDING GEAR QUICK RELEASE CARGO BASKET INSTALLATION LANDING GEAR ADAPTER FABRICATION</b>			
DECIMALS	ANGLES					
X.XXX ±0.010	±1/2°		SCALE 1 : 1	DWG. SIZE	DWG. NO.	REV.
X.XX ±0.03			SHEET 3 OF 4	A4	90640	0
X.X ±0.1						




⑤ AFT CLAMP – THREADED  
⑥ AFT CLAMP – THRU

#### NOTES

1. REMOVE ALL BURRS AND BREAK SHARP EDGES.
2. THOROUGHLY DECREASE, ALODINE, PRIME AND PAINT ALL ALUMINUM PARTS PRIOR TO ASSEMBLY.  
ALTERNATE: ANODIZE ALL ALUMINUM PARTS IN ACCORDANCE WITH MIL-A-8625F, TYPE II.

	1	3585-2CN164		#8-32 SELF LOCKING HELICOIL			
		90640-06	06	AFT CLAMP - THRU	6061-T6 ALUMINUM	QQ-A-200/8	1.5 X 2 BAR
		90640-05	05	AFT CLAMP - THREADED	6061-T6 ALUMINUM	QQ-A-200/8	1.5 X 2 BAR
06	05	PART NO.	ITEM	DESCRIPTION	MATERIAL	MATERIAL SPEC	STOCK SIZE
QTY	QTY	LIST OF MATERIALS					

APPROVALS		DATE	 <b>AERO DESIGN LTD.</b> 9888A MALASPINA ROAD POWELL RIVER, BC, CANADA, V8A 0G3 TEL: 604.483.2376 www.aerodesign.ca			
DRAWN:	JEFF CLARKE	05 OCT 2016				
CHECKED:	JASON REKVE	05 OCT 2016				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:			ROBINSON R44, R44 II – REVISED LANDING GEAR QUICK RELEASE CARGO BASKET INSTALLATION LANDING GEAR ADAPTER FABRICATION			
DECIMALS	ANGLES					
X.XXX ±0.010	±1/2°		SCALE 1 : 1	DWG. SIZE	DWG. NO.	REV.
X.XX ±0.03			SHEET 4 OF 4	A4	90640	0
X.X ±0.1						



## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 906.92

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### QUICK RELEASE CARGO BASKET

### ROBINSON R44, R44 II

#### Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Cargo Basket is installed in accordance with Aero Design Ltd. Document Control List DCL906-2, Revision 1.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 3  
Date: 14 October 2016

---

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**RECORD OF REVISIONS**

Revision Number	Issue Date	Date Inserted	By
0	22 September 2010		Original Issue
1	20 June 2011		
2	27 May 2014		
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**LIST OF EFFECTIVE PAGES**

List of Revisions	Revision 0 (Original Issue)	22 September, 2010
	Revision 1	20 June 2011
	Revision 2	27 May 2014
	Revision 3	14 October 2016

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**NOTE**

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## CHAPTER 0 – INTRODUCTION

### 0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Cargo Basket as described herein.

### 0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness

LH - Left Hand

RH - Right Hand

### 0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Cargo Basket. Requests for a copy may be made in writing to:

Aero Design Ltd.  
9888A Malaspina Road  
Powell River, BC, Canada  
V8A 0G3  
Email: [info@aerodesign.ca](mailto:info@aerodesign.ca)

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

### 0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

**CAUTION:** This installation is NOT compatible with fixed or pop-out float installations.

## 0-5 GENERAL DESCRIPTION

The cargo basket installation is a mesh basket installed to the side of the helicopter on beams attached to fittings mounted on the cross tube elbows. The quick release mechanism allows for the installation and removal of the basket quickly without tools, leaving the mounting beams in place.

The basket itself is made of a steel welded tubing structure, and lined with expanded steel mesh. The basket has a hinged lid with a self-locking handle.

The beams consist of a steel tube bolted to fittings attached to the forward and aft cross tube elbows. The quick release mechanism is built into the steel tube.

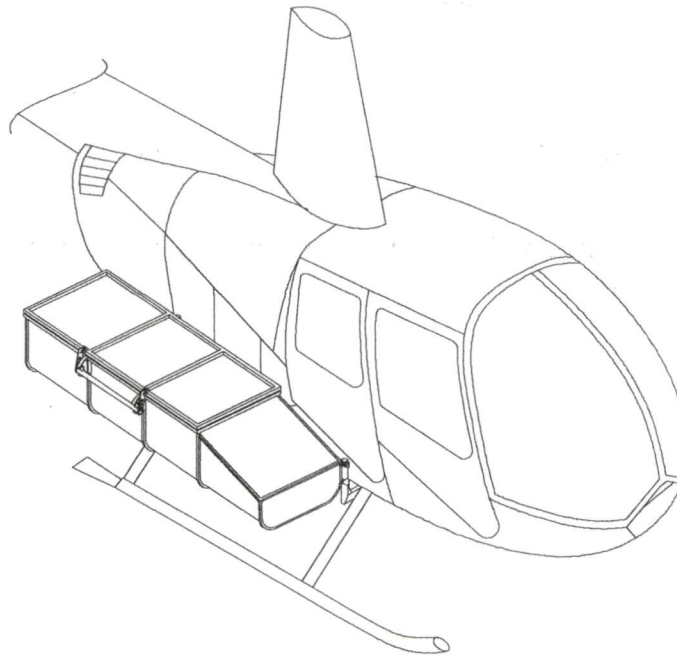


Figure 0.1 – Robinson R44 Cargo Basket Installation



## CHAPTER 4 - AIRWORTHINESS LIMITATIONS

### *Transport Canada*

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

### *FAA*

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

### *EASA*

The Airworthiness Limitations section is approved and variations must also be approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Cargo Basket.

## CHAPTER 5 – INSPECTION REQUIREMENTS

### 5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Cargo Basket.

#### *Daily Inspection*

1. Inspection Area: Basket
  - a) Inspect the basket attachment to the beams for condition and security. Ensure quick release stop pin is completely extended, flush with the outboard surface of the beam. If pin does not completely extend, or spring tension is not sufficient to retain basket, replace spring, refer to section 25-4.
  - b) Inspect latching of the lid for correct operation. Replace handle brackets on basket if handle is not retained in latched position. Refer to section 25-3.

#### *100 Hour or Annual Inspection*

1. Inspection Area: Basket
  - a) Visually inspect tube-to-tube welds and mesh-to-tube welds for cracks, corrosion or other damage.
  - b) Visually inspect basket mesh for damage.
  - c) Visually inspect lid prop for condition and operation. Ensure prop does not extend beyond catch and catch extends to hold lid open. Refer to section 25-11 for lid prop replacement.

#### *Special Inspections*

Following a hard landing inspect the Quick Release Cargo Basket installation in accordance with the 100 hour or annual inspection listed above.

### 5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

#### 1. Basket and Lid Tubing

##### *Damage Limits:*

- a) Deformation of any tubing between welded joints not exceeding 0.25 inches in any direction must be repaired in accordance with the instructions below.
- b) Corrosion not exceeding 0.015 inches deep to be buffed out to a smooth contour.
- c) Corrosion exceeding 0.015 inches deep to be repaired in accordance with the instructions below.

*Repair Instructions:*

- a) Repair Basket and Lid tubing in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, paragraphs 4-80, 4-81 and 4-83 as required.

Basket and Lid are fabricated from the following materials:

Attachment Hoops: 1" square steel tube and/or 1/2" square steel tube  
 Lid and Rim: 3/4" square steel tube  
 Frames: 1/2" square steel tube

- b) Touch up with polyurethane paint as required following repairs.

## 2. Basket and Lid Mesh

*Damage Limits:*

- a) The basket mesh may be deformed or stretched without limit, so long as the welds attaching the mesh to the basket or lid are not compromised. If welds are compromised, repair in accordance with instructions below.
- b) Tears in the mesh not exceeding 4 cells in any direction may be repaired by patching. Maximum one repair patch per bay. See instructions below.

*Repair Instructions:*

- a) Repair mesh to tube welds in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, as required.

Mesh: 3/4" 16 ga. (0.040") expanded steel mesh

b) Patch repair:

- a. Cut two aluminum sheets, minimum 0.040 inches thick, extending to at least 1 complete cell outside of torn area. Drill #9 holes in the corners of the sheet, located to clear the mesh when installed.
- b. Attach patches, one inside and one outside, to the mesh with AN3 Bolts, AN970-3 Washers, and MS21044N3 Nuts.

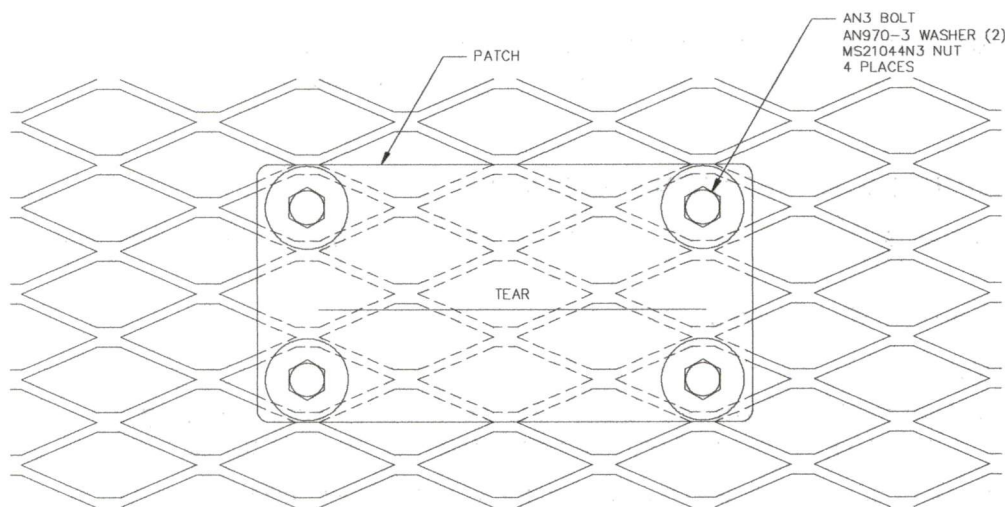


Figure 5.1 – Patch Repair

- c) Touch up with polyurethane paint as required following repairs.

### 5-3 PROTECTIVE TREATMENT INFORMATION

#### 1. Cargo Basket

The cargo basket is supplied powder coated. If the powder coat is damaged, touch up in accordance Robinson R44 Maintenance Manual Section 1.460 using Item D – F as applicable.



**CHAPTER 11 – MARKINGS AND PLACARDS**

The following markings and placards are used with the Quick Release Cargo Basket Installation in the locations noted:

a) Located on basket lid:

i) S/N 90601-01 thru S/N 90601-17 (RH) and 90602-01 thru 90602-19 (LH)



RIGHT HAND BASKET



LEFT HAND BASKET

ii) S/N 90601-18 and sub. (RH) and 90602-20 and sub. (LH)



RIGHT HAND BASKET



LEFT HAND BASKET

**CHAPTER 25 – EQUIPMENT AND FURNISHINGS****SECTION 50 – CARGO COMPARTMENTS****25-1 BASKET REMOVAL**

1. Pull knob at bottom end of aft beam and lift basket until attachment fittings are free of keyways. Rest aft end of basket on ground.
2. Slide basket forward and lift attachment fitting out of keyway in forward beam.

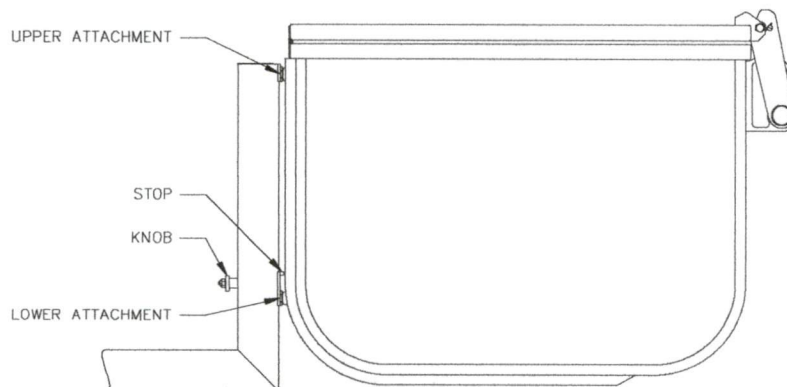


Figure 25.1 – Aft Attachment Features

**25-2 BASKET INSTALLATION**

Installation of the Quick Release Mounting Provisions is required prior to installing the Quick Release Cargo Basket. Refer to ICA906.91.

1. At forward end of basket, set upper attachment fitting into keyway in forward beam. Allow basket to hang from fitting, rest aft end on ground.

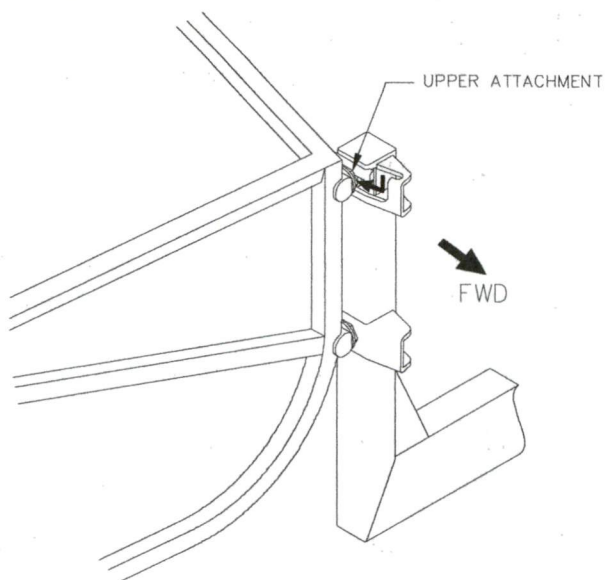


Figure 25.2 – Forward Basket Attachment Features

2. Raise aft end of basket to aft beam, sliding basket aft, and lift until lower attachment fitting hits stop over keyway.
3. Push fitting into lower keyway, ensure top fitting enters top keyway, and slide basket down until locked. Pull up on aft end basket to ensure basket is locked in place on aft beam.
4. Ensure spring-loaded pin securing lower aft basket attachment is extended flush with outboard surface of beam.

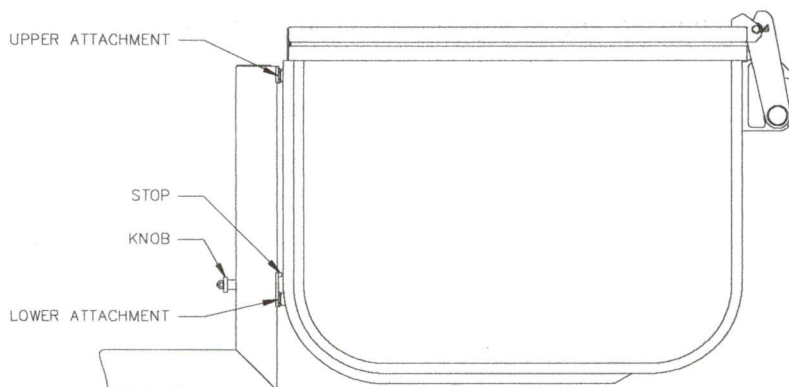


Figure 25.3 – Aft Basket Attachment Features

### 25-3 HANDLE BRACKET REPLACEMENT

Refer to Figure 25.4.

1. Remove two (2) AN3-11A Bolts, NAS1149F0363P Washers and MS21044N3 Nuts from each Handle Bracket (84267-01). Remove handle brackets from basket hoops.
2. Slide two (2) replacement Handle Brackets (84267-01) onto basket hoops. Align Handle Bracket to bushings in hoop. Insert two (2) AN3-11A Bolts with NAS1149F0363P Washers through Handle Bracket and bushing. Install NAS1149F0363P Washer and MS21044N3 Nut on each bolt. Torque nuts to 20-25 in-lbs (2.3-2.8 N-m).

### 25-4 HANDLE SPRING REPLACEMENT

Refer to Figure 25.4.

1. Remove two (2) AN3-12A Bolts, NAS1149F0363P Washers (2) and MS21044N3 Nuts attaching handle to lid. Remove handle from basket. Remove springs from handle.
2. Slide replacement 36278-01R and 36278-01L Springs onto handle. Spring arm will catch on hook when on the correct side. Insert two 36275-01 bushings into handle attachments. Locate handle on basket, and insert two (2) AN3-12A Bolts with NAS1149F0363P Washers through bracket on lid and bushing in handle. Install NAS1149F0363P Washer and MS21044N3 Nut on each bolt. Torque nuts to 20-25 in-lbs (2.3-2.8 N-m). Lift spring arm over catch on handle and bar on lid bracket.

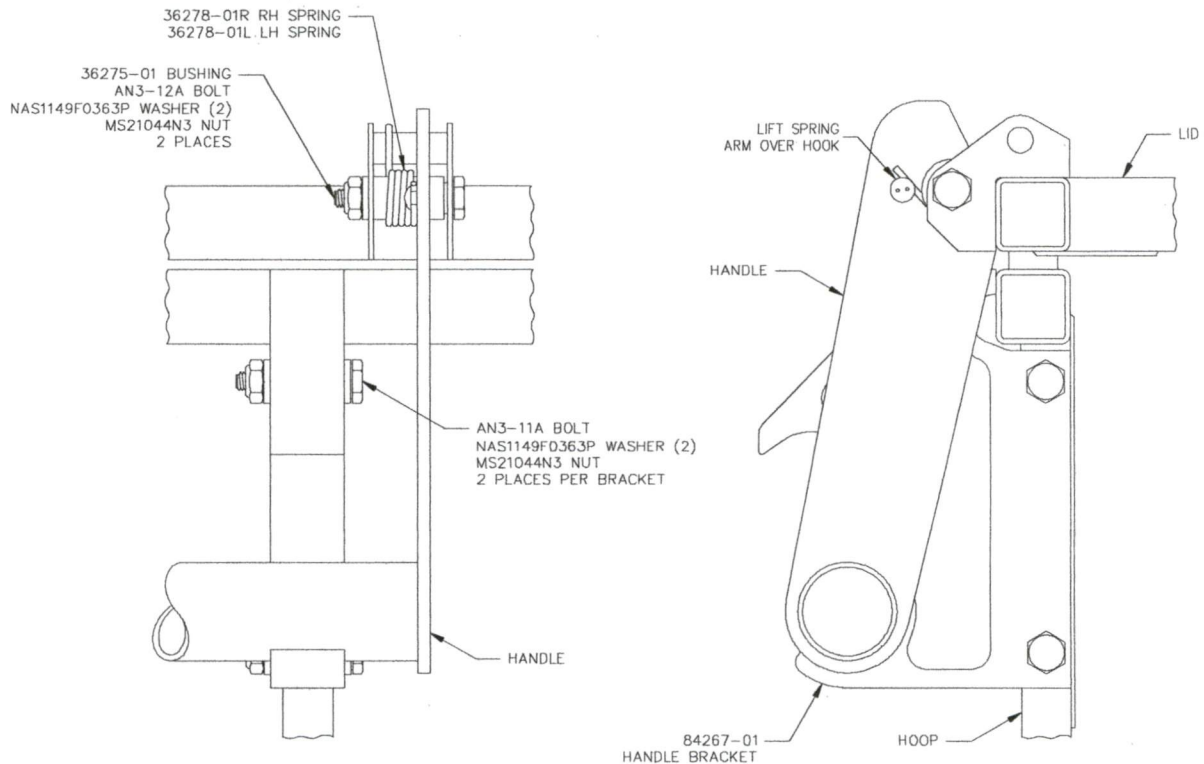


Figure 25.4 – Handle Bracket Parts

**25-5 LID PROP REPLACEMENT**

1. Remove AN3-15A and AN3-17A Bolts, NAS1149F0363P Washers (3), AN970-3 Washers (2) and MS21044N3 Nuts attaching lid prop to basket assembly. Remove lid prop from basket
2. Locate replacement 36280-01 Lid Prop on bushings at forward end of basket and lid.
3. Insert AN970-3 Washer into lid end of prop, and slide AN3-15A Bolt with NAS1149F0363P Washer through bushing in lid. Install NAS1149F0363P Washer and MS21044N3 Nut on bolt.
4. Slide AN3-17A Bolt with AN970-3 Washer through bushing in basket. Install NAS1149F0363P Washer and MS21044N3 Nut on bolt.
5. Ensure lid prop is seated on bushings and torque nuts to 20-25 in-lbs (2.3-2.8 N-m).

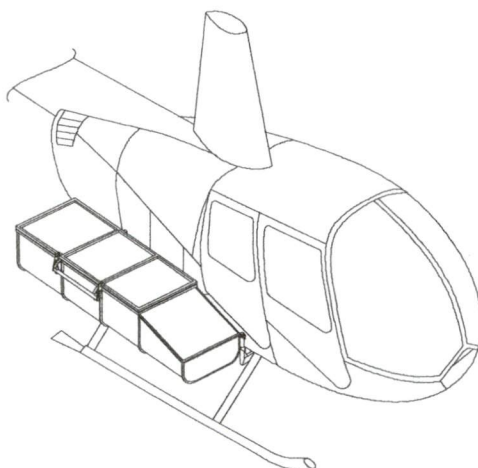
**25-6 QUICK RELEASE PIN SPRING REPLACEMENT**

1. Remove basket from mounting beams, refer to section 25-1.
2. At lower attachment keyway on aft beam, remove MS21044C3 Nut from #10-32 stainless steel countersunk screw and remove 69830-13 Knob, 69830-12 Stop, and 69830-23 Spring. Discard defective Spring.
3. Place 69830-12 Stop on #10-32 stainless steel countersunk screw. Slide replacement 69830-23 Spring onto Stop. Insert screw/Stop/Spring into guide in



lower keyway of aft beam. Install 69830-13 Knob and MS21044C3 Nut on inboard side of beam. Torque nut to 20-25 in-lbs (2.3-2.8 N-m).

## 25-7 WEIGHT AND BALANCE



Quick Release Cargo Basket: Configuration 90601-01

Standard P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
90610-01-XX	Basket	41.8	112.4	4698.3	34.4	1437.9
90602-01-XX	Quick Release Mounting Provisions	11.6	101.3	1174.5	7.2	84.0
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>53.4</b>	<b>110.0</b>	<b>5872.8</b>	<b>28.5</b>	<b>1521.9</b>
Maximum Cargo (centered in basket)		175.0	112.4	19670.0	34.4	6020.0

Metric P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
90610-01-XX	Basket	18.9	2855	53999	874	16526
90602-01-XX	Quick Release Mounting Provisions	5.3	2552	13396	184	965
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>24.2</b>	<b>2789</b>	<b>67394</b>	<b>724</b>	<b>17491</b>
Maximum Cargo (centered in basket)		80.0	2855	228397	874	69901

Note: -XX indicates side. -01 is RH, -02 is LH. Lateral arm is negative on LH side.

Quick Release Cargo Basket: Configuration 90601-01  
Aircraft equipped with revised landing gear

Standard		Weight	Longitudinal		Lateral	
P/N	Description	lb	arm in	moment in-lb	arm in	moment in-lb
90610-01-XX	Basket	41.8	112.4	4698.3	34.4	1437.9
90603-01-XX	Quick Release Mounting Provisions	12.4	101.1	1253.9	6.8	84.0
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>54.2</b>	<b>109.8</b>	<b>5952.2</b>	<b>28.1</b>	<b>1521.9</b>
Maximum Cargo (centered in basket)		175.0	112.4	19670.0	34.4	6020.0

Metric		Weight	Longitudinal		Lateral	
P/N	Description	kg	arm mm	moment mm-kg	arm mm	moment mm-kg
90610-01-XX	Basket	18.9	2855	53999	874	16526
90603-01-XX	Quick Release Mounting Provisions	5.6	2545	14279	172	965
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>24.5</b>	<b>2784</b>	<b>68278</b>	<b>713</b>	<b>17491</b>
Maximum Cargo (centered in basket)		80.0	2855	228397	874	69901

Note: -XX indicates side. -01 is RH, -02 is LH. Lateral arm is negative on LH side.

### OPTIONS

The following weight and balance is for optional configurations of the basket

Standard		Weight	Longitudinal		Lateral	
P/N	Description	lb	arm in	moment in-lb	arm in	moment in-lb
70408-01	Hangar Wheel	0.8	149.0	119.2	31.1	24.9

Metric		Weight	Longitudinal		Lateral	
P/N	Description	kg	arm mm	moment mm-kg	arm mm	moment mm-kg
70408-01	Hangar Wheel	0.4	3785	1370	790	286

### 25-8 STRUCTURAL FASTENER DATA

Refer to Robinson R44 Maintenance Manual, section 1.300 for torque values not listed in this ICA.

## **INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 906.91**

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### **QUICK RELEASE MOUNTING PROVISIONS**

### **ROBINSON R44, R44 II**

#### **Preface**

These Instructions for Continued Airworthiness shall be included in the Robinson R44 Maintenance Manual when the External Attachment Provisions are installed in accordance with Aero Design Ltd. Document Control List DCL906-1, Revision 2, or later approved revision.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 3  
Date: 14 October 2016

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## CHAPTER 0 – INTRODUCTION

### 0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for the Robinson R44 Series embodying the External Attachment Provisions as described herein.

### 0-2 DEFINITIONS AND ABBREVIATIONS

ICA -	Instructions for Continued Airworthiness
LH -	Left Hand
RH -	Right Hand
Close Side-	Side closest to cargo basket or equipment installation
Far side -	Side opposite to cargo basket or equipment installation

### 0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the External Attachment Provisions. Requests for a copy may be made in writing to:

Aero Design Ltd.  
9888A Malaspina Road  
Powell River, BC, Canada  
V8A 0G3  
Email: [info@aerodesign.ca](mailto:info@aerodesign.ca)

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

### 0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

**CAUTION :** This installation is NOT compatible with fixed or pop-out float installations.

### 0-5 GENERAL DESCRIPTION

Quick Release Mounting Provisions are a pair of beams mounted to fittings attached to the cross tube elbows under the helicopter. The Quick Release Mounting Provisions allow the installation of various equipment, such as cargo baskets.

The fittings are aluminum clamps with a mounting point for the beam. The clamp arrangement allows for variability in the cross tube elbows, and allows the cross tube to flex without stiffening due to the beam.

The beams are steel tubing which stick out from the side of the helicopter, and have a vertical tube with keyways in the outboard face to mount various pieces of equipment such as cargo baskets and flight steps. The quick release mechanism is built into the down tube.

## CHAPTER 4 – AIRWORTHINESS LIMITATIONS

### *Transport Canada*

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

### *FAA*

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

### *EASA*

The Airworthiness Limitations section is approved and variations must also be approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Mounting Provisions.

## CHAPTER 5 – INSPECTION REQUIREMENTS

### 5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the Robinson R44 Series Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of the Quick Release Mounting Provisions.

#### *100 Hour or Annual Inspection*

1. Inspection Area: Landing Gear Cross Tube Elbows
  - a) Visually inspect attachment clamp fittings in situ for cracks, corrosion or other damage.
  - b) Visually inspect hardware securing attachment fittings to cross tube elbows in situ for security and damage.
2. Inspection Area: Beams
  - a) Visually inspect beams for cracks, corrosion or other damage.
  - b) Visually inspect bolts attaching beams to external attachment provisions for security and damage.
  - c) Inspect rubber hose at clamp fitting for condition.

#### *Special Inspections*

Following a hard landing inspect the Quick Release Mounting Provisions installation in accordance with the 100 hour or annual inspection listed above.

### 5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Attachment Fittings

DO NOT REPAIR DAMAGE TO FITTINGS IF BEYOND THE LIMITS BELOW.

  - a) Nicks and/or gouges on any surface up to 0.030" deep and 0.125" wide may be dressed out to a smooth contour. Touch up paint as required.
  - b) Cracking on any surface is unacceptable.
  - c) Do not repair elongation of provision bolt hole (AN6 bolt). Hole is nominally 0.386" (W drill) in diameter.
  - d) Touch up with polyurethane paint as required following repairs.
2. Beams

DO NOT REPAIR DAMAGE TO BEAMS IF BEYOND THE LIMITS BELOW.

  - a) Nicks and/or gouges on any face up to 0.015" deep and 0.125" wide may be dressed out to a smooth contour.



- b) Critical keyway dimensions on the aft beam are shown in Figure 5.1. The forward beam does not have a critical dimension. Attempt to insert 15/32 drill shank into bottom end of slots. If drill can be inserted, slot is worn beyond limit.

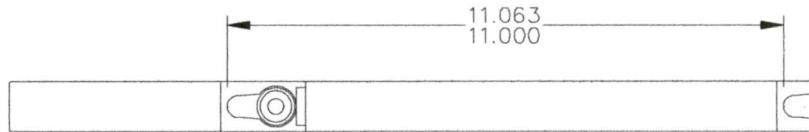


Figure 5.1 – Critical Keyway Dimensions (Aft Beam)

- c) Touch up with polyurethane paint as required following repairs.
- d) Rubber hose on attachment end of beams shall be replaced if it shows signs of cracking, hardening, or other deterioration. Replace with  $\frac{3}{4}$ " ID commercial heater hose, 1" long.

### 5-3 PROTECTIVE TREATMENT INFORMATION

#### 1. Attachment Fittings

The Attachment Fittings are supplied painted black. If the paint is damaged, touch up in accordance with Robinson R44 Maintenance Manual Section 1.460 using "Limited Touch up" Item A.

Alternate: The Attachment Fittings are supplied anodized black. If the anodizing is damaged, paint in accordance Robinson R44 Maintenance Manual Section 1.460 using Item A.

#### 2. Beams

The Beams are supplied powder coated. If the powder coating is damaged, touch up in accordance Robinson R44 Maintenance Manual Section 1.460 using Item D – F as applicable.

## CHAPTER 25 – EQUIPMENT AND FURNISHINGS

## 25-1 QUICK RELEASE MOUNTING PROVISIONS REMOVAL

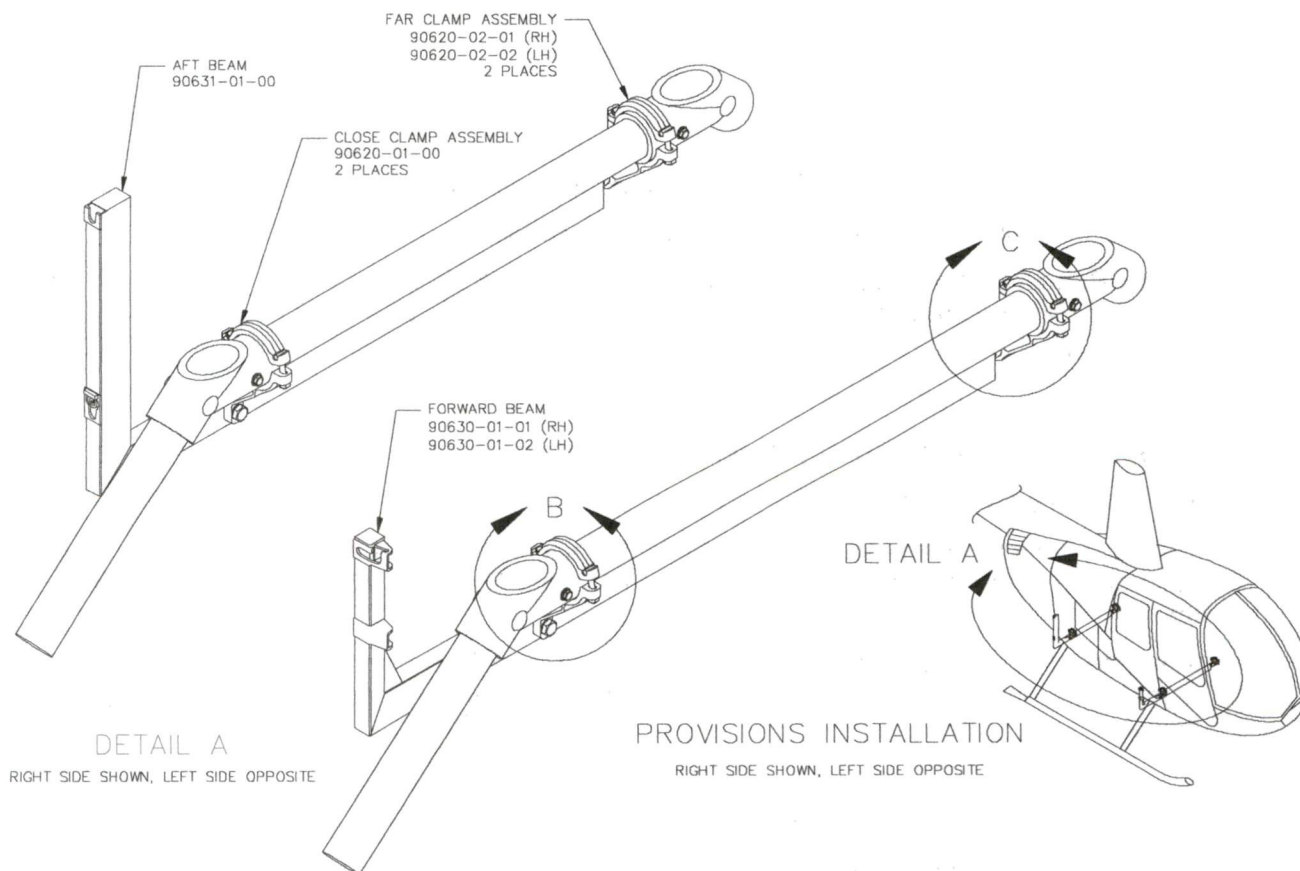


Figure 25.1 – Quick Release Mounting Provisions

1. Remove AN6-21A Bolt, NAS1149F0663P Washers and MS21044N6 Nut attaching Forward Beam (90630-01-01 RH or -02 LH) to Close Clamp Assembly. Remove Forward Beam by pulling out of Far Clamp Assembly. Ensure Rubber Hose remains on Forward Beam.
2. Remove AN6-21A Bolt, NAS1149F0663P Washers and MS21044N6 Nut attaching Aft Beam (90631-01-00) to Close Clamp Assembly. Remove Aft Beam by pulling out of Far Clamp Assembly. Ensure Rubber Hose remains on Aft Beam.
3. Loosen 3D0006-4 Self Aligning Nut on T-Bolt on Clamp Assembly. Clamp Assembly may be moved off elbow to centre section of cross tube for easier access.
4. Remove MS21042L4 Nut, and NAS1149F0463P Washer from AN4 bolt on Clamp Assembly.
5. Remove Clamp Assembly from cross tube.
6. Repeat steps 3 - 5 for remaining Clamp Assemblies.

7. Forward Cross Tube Cover (C475-5) and Strut Fairings (C082-XX) may be installed in accordance with the Robinson R44 Maintenance Manual.

## 25-2 QUICK RELEASE MOUNTING PROVISIONS INSTALLATION

Refer to Figure 25.1.

1. Remove Strut Fairings (C082-XX) on the side of the helicopter that the equipment (cargo basket, etc.) will be installed on. Refer to R44 Maintenance Manual, Section 5.410.
2. Remove Forward Cross Tube Cover (C475-5). Leave Channels (C388-3) in place.
3. Remove MS21042L4 Nut and NAS1149F0463P Washer from AN4-12A Bolt on Close Clamp Assembly (90620-01-00). Loosen 3D0006-4 Self-Aligning Nut on FT4F-175H T-Bolt if required. Locate Clamp Assembly on forward cross tube elbow, with beam mounting lug on aft side, approximately 0.25" from inboard edge. Install NAS1149F0463P Washer and MS21042L4 Nut on AN4-12A Bolt. Tighten nuts enough to prevent the clamp from slipping on the elbow. Repeat for aft cross tube. See Figure 25.2.

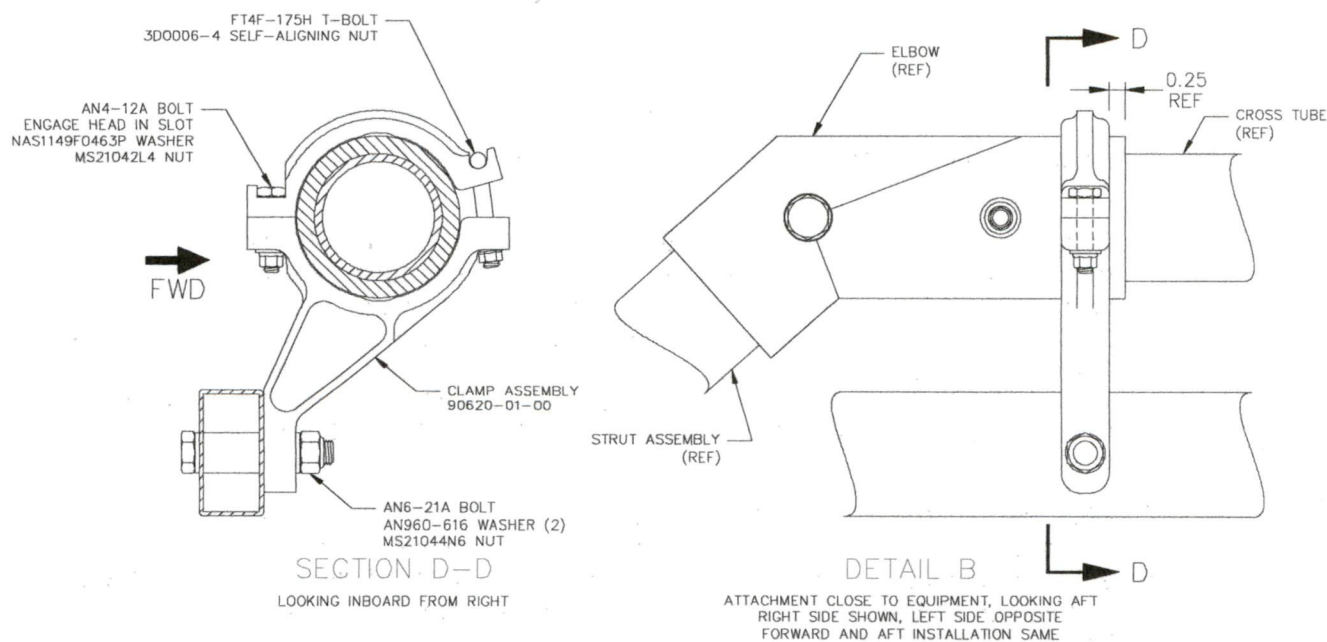


Figure 25.2 – Clamp Assembly Installation (Close Side)

4. Remove MS21042L4 Nut and NAS1149F0463P Washer from AN4-12A Bolt on Far Clamp Assembly (90620-02-01 RH or -02 LH). Loosen 3D0006-4 Self-Aligning Nut on FT4F-175H T-Bolt if required. Locate Clamp Assembly on forward cross tube elbow with beam mounting lug on aft side, approximately 0.25" from inboard edge. Install NAS1149F0463P Washer and MS21042L4 Nut on AN4-12A Bolt. Tighten nuts enough to prevent the clamp from slipping on the elbow. Repeat for remaining aft cross tube. See Figure 25.3



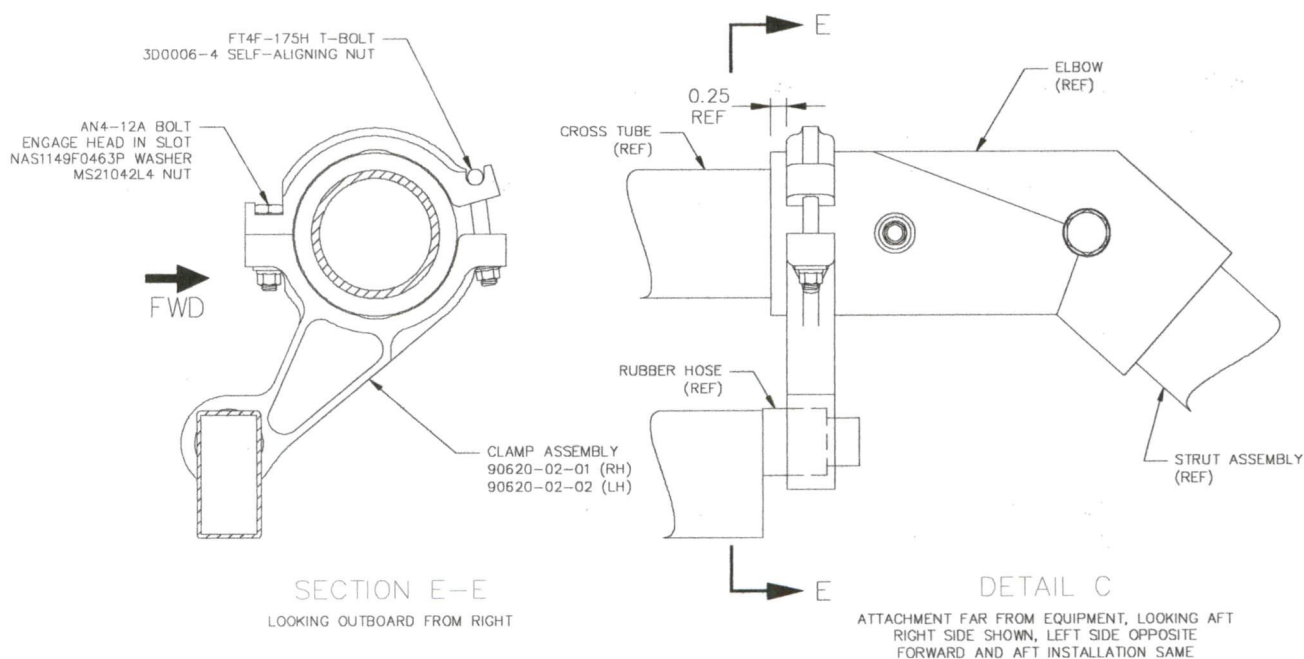


Figure 25.3 – Clamp Assembly Installation (Far Side)

5. Remove Rubber Hose from Forward and Aft Beams and insert into Far Clamp Assemblies.
6. Slide pin on far end of Forward Beam Assembly (90630-01-01 RH, -02 LH) into rubber hose in Far Clamp Assembly on forward cross tube. Rubber hose may be lubricated with soap and water if required. Insert AN6-21A Bolt with NAS1149F0663P Washer through bushing in Forward Beam into hole in Close Clamp Assembly. Shift clamps inboard or outboard as required, maintain approximately equal distance from clamp to edge of elbow. Install NAS1149F0663P Washer and MS21044N6 Nut on bolt. Torque AN6 bolt to 160-190 in-lbs (18.1-21.5 N-m).
7. Slide pin on far end of Aft Beam Assembly (90631-01-00) into rubber hose in Far Clamp Assembly on aft cross tube. Rubber hose may be lubricated with soap and water if required. Insert AN6-21A Bolt with NAS1149F0663P Washer through bushing in Aft Beam into hole in Close Clamp Assembly. Install NAS1149F0663P Washer and MS21044N6 Nut on bolt. Torque AN6 bolt to 160-190 in-lbs (18.1-21.5 N-m).
8. Adjust beams as to be parallel to cross tubes with a 1" gap between the beam and cross tube. Rotate the far clamp only to adjust for parallel, then rotate both clamps together to attain 1" gap. Loosen clamps as required, re-tighten after.
9. Torque bolts on Clamp Assemblies to 50-70 in-lbs (5.6-7.9 N-m).



### 25-3 REVISED LANDING GEAR

In 2015, Robinson updated the landing gear configuration, removing the aluminum elbows where the attachment provisions are installed. In order to install the mounting provisions described above, accomplish the following:

1. Remove fairings and covers in accordance with Section 25-2 step 1. and 2.
2. Install two Adapter 90640-01 on the forward cross tube. Locate the adapters 2.13" (54 mm) from the inboard edge of the corner fitting on the cross tube.
3. Install two Adapter 90640-02 on the aft cross tube. Locate the adapters 2.13" (54 mm) from the inboard edge of the corner fitting on the cross tube.

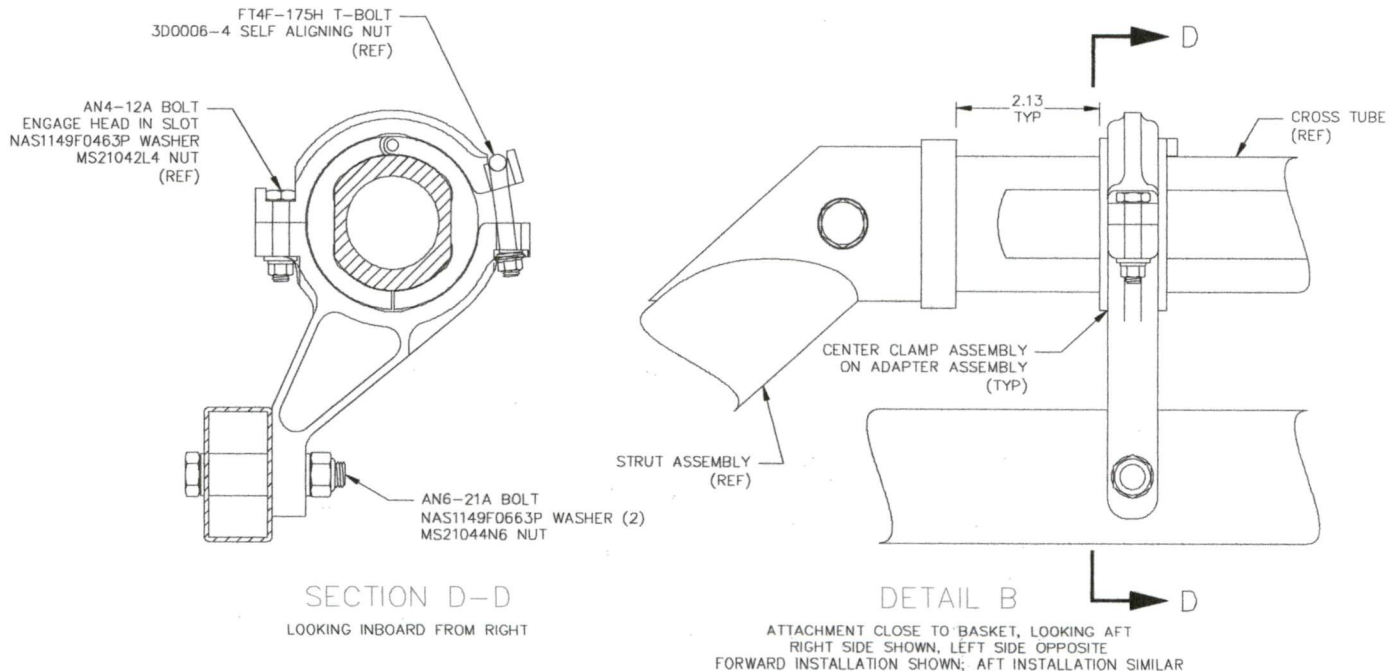


Figure 25.4 – Clamp Assembly Installation, Revised Landing Gear  
(Forward shown, aft similar; Close Side shown, Far Side similar)

4. Continue installation in accordance with Section 25-2 at step 3. Locate Clamp Assemblies on Adapters, shifting Adapters as necessary to keep the Clamp Assembly centered.

## 25-4 BILL OF MATERIALS

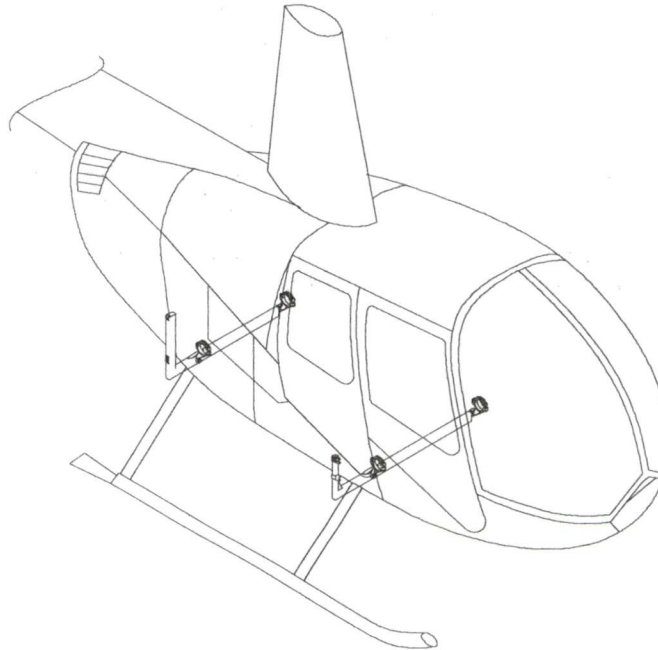
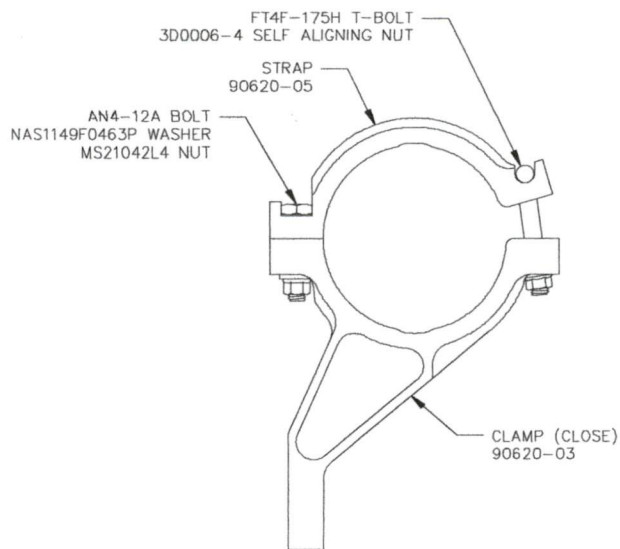


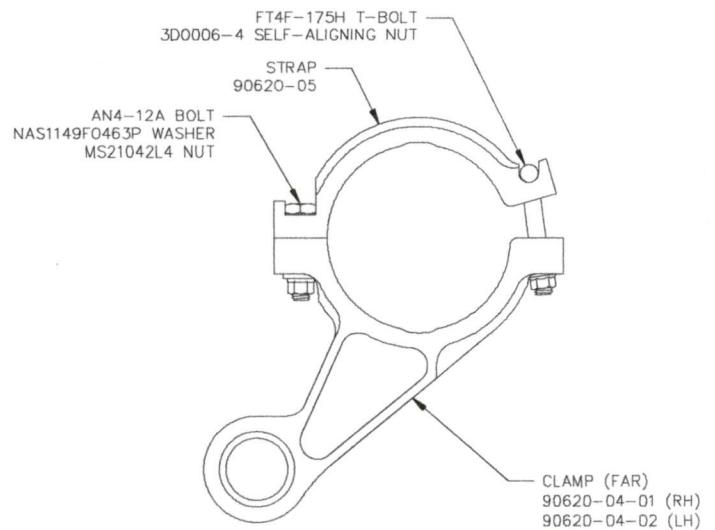
Figure 25.4 – Attachment Provisions Installation

Qty.	Part Number	Description
1	90602-01-01	<b>Attachment Provisions Installation – RH</b>
1	90602-01-02	<b>Attachment Provisions Installation – LH</b>
. 2	90620-01-00	Clamp Assembly (Close)
. 2	90620-02-01	Clamp Assembly (Far, RH)
. 2	90620-02-02	Clamp Assembly (Far, LH)
. 1	90630-01-01	Forward Beam Assembly (RH)
. 1	90630-01-02	Forward Beam Assembly (LH)
. 1	90631-01-00	Aft Beam Assembly
. 2	AN6-21A	Bolt
. 2	NAS1149F0663P	Washer
. 2	MS21044N6	Nut

Qty.	Part Number	Description
1	90603-01-01	<b>Attachment Provisions Installation – RH</b>
1	90603-01-02	<b>Attachment Provisions Installation – LH</b>
. 2	90640-01	Forward Adapter
. 2	90640-02	Aft Adapter
. 2	90620-01-00	Clamp Assembly (Close)
. 2	90620-02-01	Clamp Assembly (Far, RH)
. 2	90620-02-02	Clamp Assembly (Far, LH)
. 1	90630-01-01	Forward Beam Assembly (RH)
. 1	90630-01-02	Forward Beam Assembly (LH)
. 1	90631-01-00	Aft Beam Assembly
. 2	AN6-21A	Bolt
. 2	NAS1149F0663P	Washer
. 2	MS21044N6	Nut



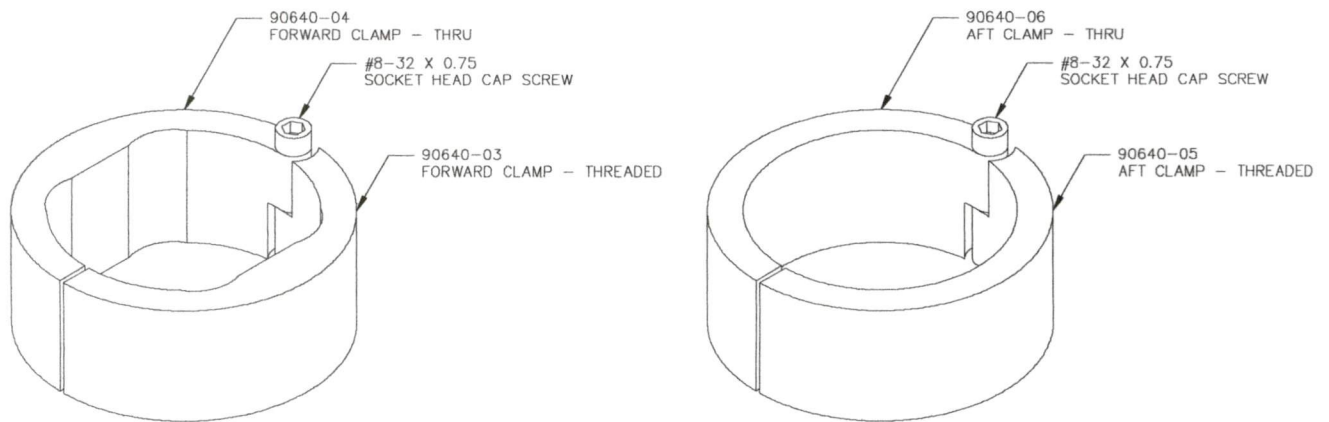
90620-01-00 CLAMP ASSEMBLY  
(CLOSE)



90620-02-XX CLAMP ASSEMBLY  
(FAR)

Figure 25.5 – Clamp Assemblies

Qty.	Part Number	Description
<b>2</b>	<b>90620-01-00</b>	<b>Clamp Assembly (Close)</b>
. 1	90620-03	Clamp (Close)
. 1	90620-05	Strap
. 1	AN4-12A	Bolt
. 1	NAS1149F0463P	Washer
. 1	MS21042L4	Nut
. 1	FT4F-175H	T-Bolt
. 1	3D0006-4	Self-Aligning Nut
<b>2</b>	<b>90620-02-01</b>	<b>Clamp Assembly (Far, RH)</b>
. 1	90620-04-01	Clamp (Far, RH)
. 1	90620-05	Strap
. 1	AN4-12A	Bolt
. 1	NAS1149F0463P	Washer
. 1	MS21042L4	Nut
. 1	FT4F-175H	T-Bolt
. 1	3D0006-4	Self-Aligning Nut
<b>2</b>	<b>90620-02-02</b>	<b>Clamp Assembly (Far, LH)</b>
. 1	90620-04-02	Clamp (Far, LH)
. 1	90620-05	Strap
. 1	AN4-12A	Bolt
. 1	NAS1149F0463P	Washer
. 1	MS21042L4	Nut
. 1	FT4F-175H	T-Bolt
. 1	3D0006-4	Self-Aligning Nut



90640-01 FORWARD ADAPTER ASSEMBLY

90640-02 AFT ADAPTER ASSEMBLY

Figure 25.6 – Adapter Assemblies

Qty.	Part Number	Description
2	90640-01	<b>Forward Adapter</b>
. 1	90640-03	Forward Clamp – Threaded
. 1	90640-04	Forward Clamp – Through
. 1	commercial	#8-32 x 0.75 Socket Head Cap Screw, Stainless Steel
2	90640-02	<b>Aft Adapter</b>
. 1	90640-05	Aft Clamp – Threaded
. 1	90640-06	Aft Clamp – Through
. 1	commercial	#8-32 x 0.75 Socket Head Cap Screw, Stainless Steel



## 25-5 WEIGHT AND BALANCE

Removal of beams leaving clamps in place is an approved configuration for flight. Two weight and balance configurations are required: Clamps only; and Beams and Clamps.

Standard		Weight (lbs)	Longitudinal		Lateral	
P/N	Description		Arm (in)	Moment (in-lbs)	Arm (in)	Moment (in-lbs)
RH Provisions Installation						
90620-XX-XX	Clamp Assemblies	1.6	99.7	159.5	-0.7	-1.0
90630-01-01	Forward Beam Assembly	5.0	74.2	371.0	8.3	41.5
90631-01-00	Aft Beam Assembly	5.0	128.8	644.0	8.7	43.5
90602-01-01	RH Provisions Installation (Total)	11.6	101.3	1174.5	7.2	84.0
90640-XX	Adapters	0.8	99.2	79.4	0.0	0.0
90603-01-01	RH Provisions Installation (Total)	12.4	101.1	1253.9	6.8	84.0
LH Provisions Installation						
90620-XX-XX	Clamp Assemblies	1.6	99.7	159.5	0.7	1.0
90630-01-02	Forward Beam Assembly	5.0	74.2	371.0	-8.3	-41.5
90631-01-00	Aft Beam Assembly	5.0	128.8	644.0	-8.7	-43.5
90602-01-02	LH Provisions Installation (Total)	11.6	101.3	1174.5	-7.2	-84.0
90640-XX	Adapters	0.8	99.2	79.4	0.0	0.0
90603-01-02	LH Provisions Installation (Total)	12.4	101.1	1253.9	-6.8	-84.0

Metric		Weight (kg)	Longitudinal		Lateral	
P/N	Description		Arm (mm)	Moment (mm-kg)	Arm (mm)	Moment (mm-kg)
RH Provisions Installation						
90620-XX-XX	Clamp Assemblies	0.7	2532	1833	-17	-12
90630-01-01	Forward Beam Assembly	2.3	1885	4264	211	477
90631-01-00	Aft Beam Assembly	2.3	3226	7298	221	500
90602-01-01	RH Provisions Installation (Total)	5.3	2552	13396	184	965
90640-XX	Adapters	0.4	2520	912	0	0
90603-01-01	RH Provisions Installation (Total)	5.6	2545	14279	172	965
LH Provisions Installation						
90620-XX-XX	Clamp Assemblies	0.7	2532	1833	17	12
90630-01-02	Forward Beam Assembly	2.3	1885	4264	-211	-477
90631-01-00	Aft Beam Assembly	2.3	3226	7298	-221	-500
90602-01-02	LH Provisions Installation (Total)	5.3	2552	13396	-184	-965
90640-XX	Adapters	0.4	2520	912	0	0
90603-01-02	LH Provisions Installation (Total)	5.6	2545	14279	-172	-965

## 25-6 STRUCTURAL FASTENER DATA

Refer to Robinson R44 Maintenance Manual, section 1.300 for torque values not listed in this ICA.

Aero Design Ltd.



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FMS906.90

## ROBINSON R44, R44 II

### **ROTORCRAFT FLIGHT MANUAL SUPPLEMENT for the INSTALLATION of the AERO DESIGN QUICK RELEASE CARGO BASKET**

Canadian Supplemental Type Certificate No. SH10-48  
FAA Supplemental Type Certificate No. SR02291NY  
EASA Supplemental Type Certificate No. 10050758

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory.

Section V and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Robinson R44 or R44 II when fitted with the Quick Release Cargo Basket Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement, refer to the Approved Flight Manual and other approved Flight Manual Supplements.

### Table of Contents

I	Limitations	3
II	Normal Procedures	3
III	Emergency Procedures	3
IV	Performance	3
V	Weight and Balance	4
VI	Installation / removal instructions	6

### Record of Revisions

Revision	Issue Date	Pages Revised	Date Inserted	By
0	22 Sept 2010	Original Issue		
1	27 May 2014	1,2		
2	14 Oct 2016	1,2,5		

## **I LIMITATIONS**

1. Only one basket may be installed at a time, on the right or left side.
2. The maximum load in the AERO Design Ltd. Quick Release Cargo Basket is 175 lb.
3. Flight operations limited to VFR conditions with AERO Design Ltd. Cargo Basket installed.
4. Maximum  $V_{NE}$  of 110 KIAS with either basket installed. Use R44 placarded  $V_{NE}$  or 110 KIAS whichever is lower.

## **II NORMAL PROCEDURES**

1. Pre-flight inspections:
  - a) Ensure that all cargo stored in the cargo basket is properly tied down and secured for flight.
  - b) Ensure that the lid of cargo basket is closed and secured.
  - c) Ensure the basket is locked in position on the beams. Pull up on the aft end of the basket to check.

### **CAUTION**

It is possible to exceed the lateral centre of gravity limits of the rotorcraft under some loading conditions. Pilots must ensure that lateral C of G is within limits when loading the basket.

## **III EMERGENCY PROCEDURES**

No change from basic Approved Flight Manual.

### **CAUTION:**

The rotorcraft glide angle is steeper than that of the basic helicopter when the AERO Design Ltd. Cargo Basket is installed.

## **IV PERFORMANCE**

Cruise performance and range will be reduced by approximately 14% percent with the cargo basket installed on either side.

Climb performance will be reduced by up to 300 fpm with the cargo basket installed on either side.



## V WEIGHT AND BALANCE

- The following weight and balance is for the quick release cargo basket configuration, installed in accordance with drawing 90601.

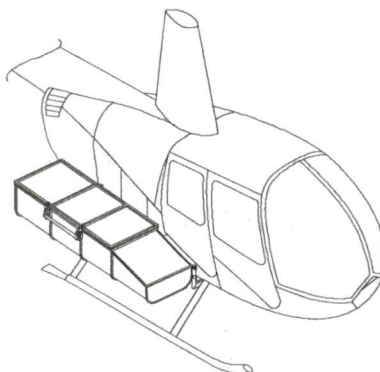


Figure 1 –Quick Release Cargo Basket Configuration

Standard P/N <sup>1</sup>	Description	Weight	Longitudinal		Lateral <sup>2</sup>	
		lb	arm in	moment in-lb	arm in	moment in-lb
90610-01-XX	Basket	41.8	112.4	4698.3	34.4	1437.9
90602-01-XX	Mounting Provisions	11.6	101.3	1174.5	7.2	84.0
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>53.4</b>	<b>110.0</b>	<b>5872.8</b>	<b>28.5</b>	<b>1521.9</b>
	Maximum Cargo <sup>3</sup> (centred in basket)	175.0	112.4	19670.0	34.4	6020.0

Metric P/N <sup>1</sup>	Description	Weight	Longitudinal		Lateral <sup>2</sup>	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
90610-01-XX	Basket	18.9	2855	53999	874	16526
90602-01-XX	Mounting Provisions	5.3	2552	13396	184	965
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>24.2</b>	<b>2789</b>	<b>67394</b>	<b>724</b>	<b>17491</b>
	Maximum Cargo <sup>3</sup> (centred in basket)	80.0	2855	228397	874	69901

The following weight and balance is for aircraft equipped with the Robinson updated landing gear configuration.

Standard		Weight	Longitudinal		Lateral <sup>2</sup>	
P/N <sup>1</sup>	Description		arm	moment	arm	moment
		lb	in	in-lb	in	in-lb
90610-01-XX	Basket	41.8	112.4	4698.3	34.4	1437.9
90603-01-XX	Mounting Provisions	12.4	101.1	1253.9	6.8	84.0
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>54.2</b>	<b>109.8</b>	<b>5952.2</b>	<b>28.1</b>	<b>1521.9</b>
	Maximum Cargo <sup>3</sup> (centred in basket)	175.0	112.4	19670.0	34.4	6020.0

Metric		Weight	Longitudinal		Lateral <sup>2</sup>	
P/N <sup>1</sup>	Description		arm	moment	arm	moment
		kg	mm	mm-kg	mm	mm-kg
90610-01-XX	Basket	18.9	2855	53999	874	16526
90603-01-XX	Mounting Provisions	5.6	2545	14279	172	965
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>24.5</b>	<b>2784</b>	<b>68278</b>	<b>713</b>	<b>17491</b>
	Maximum Cargo <sup>3</sup> (centred in basket)	80.0	2855	228397	874	69901

<sup>1</sup> -XX indicates side. -01 is RH, -02 is LH.

<sup>2</sup> Lateral arm is negative on LH side.

<sup>3</sup> Longitudinal and Lateral moment arms are given only for the center of the Cargo Basket. Due to the length and position of the basket, some loading arrangements may require that actual moment arms be measured, to determine the correct moments about the center of gravity.

**CAUTION:**

It is possible to exceed lateral CG limits in some configurations.

## VI INSTALLATION / REMOVAL INSTRUCTIONS

The basket is installed in accordance with drawing 90601. The mounting provisions are installed in accordance with drawing 90602. Removal of the basket leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of basket and weight and balance amendment is required when basket is installed or removed.

1. Installation - Refer to Figure 2 and 3.
  1. At forward end of basket, set upper attachment fitting into keyway in forward beam. Allow basket to hang from fitting, rest aft end on ground.
  2. Raise aft end of basket to aft beam, sliding basket aft, and lift until lower attachment fitting hits stop over keyway.
  3. Push fitting into lower keyway, ensure top fitting enters top keyway, and slide basket down until locked.

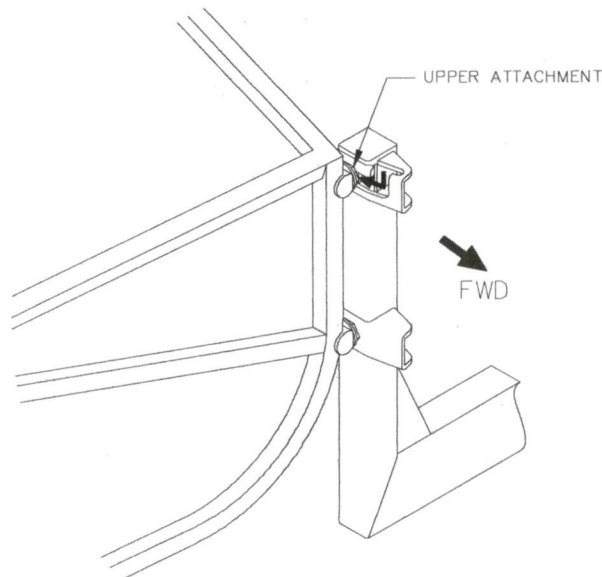


Figure 2 – Basket Forward Attachment

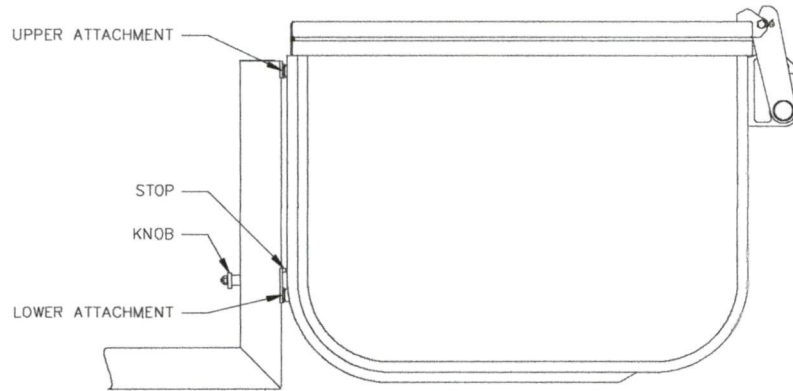


Figure 3 – Basket Aft Attachment

2. Removal - Refer to Figure 2 and 3.
  1. Pull knob at bottom end of aft beam and lift basket until attachment fittings are free of keyways. Rest aft end of basket on ground.
  2. Slide basket forward and lift attachment fitting out of keyway on forward beam.





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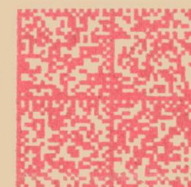
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**Attn.: Mr. Jeff Clarke  
Aero Design Ltd.  
9888A Malaspina Road  
POWELL RIVER BC CANADA V8Z 0G3**

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United States of America  
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*Supplemental Type Certificate*  
IMPORT

Number: SR02991NY

This certificate issued to: Aero Design Ltd.  
9888A Malaspina Road  
Powell River, British Columbia V8A 0G3  
Canada

certifies that the change in the type design for the following product with the limitations and conditions therefore as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations.

Original Product – Type Certificate Number:  
H11NM

Make: Robinson Helicopter Company  
Model: R44, R44II

Description of Type Design Change:

The installation of Quick Release Mounting Provisions and Quick Release Cargo Basket.

1. Configuration A- Quick Release Mounting Provisions

- a. Installation of Quick Release Mounting Provisions to be done in accordance with Transport Canada approved Aero Design Ltd. Document Control List, DCL 906-1, Revision 1 dated June 2, 2014, or later Transport Canada approved revision.

(See Description of Type Design Change Continued on Page 3 of 3)

Limitations and Conditions:

1. Quick Release Mounting Provisions installed in accordance with DCL906-1 may remain installed if a cargo basket configuration is removed. Mounting beams may be removed leaving attachment fittings in place on the landing gear.
2. Installation of Configuration A, Quick Release Mounting Provisions is a prerequisite for the installation of Configuration B, External Cargo Basket.

(See Limitations and Conditions Continued on Page 3 of 3)

*This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, and revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.*

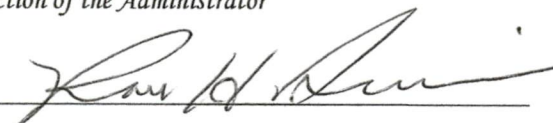
Date of Application: November 30, 2010

Date Reissued:

Date of Issuance: June 30, 2011

Date Amended: October 10, 2014

By Direction of the Administrator

Signature   
Title Gaetano Sciortino  
Manager  
New York Aircraft Certification Office

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. This certificate may be transferred or made available to third persons by licensing agreements in accordance with 14 CFR 21.47. Possession of this Supplemental Type Certificate (STC) document by persons other than the STC holder does not constitute rights to the design data nor to alter an aircraft, aircraft engine, or propeller. The STC's supporting documentation (drawings, instructions, specifications, flight manual supplements, etc.) is the property of the STC holder. An STC holder who allows a person to use the STC to alter an aircraft, aircraft engine, or propeller must provide that person with written permission acceptable to the FAA. (Ref. 14 CFR 21.120).



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*Transfer Endorsement*

*Transfer the ownership of Supplemental Type Certificate Number: SR02991NY*

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**From** (Name and address of grantor)

Extent of Authority (if licensing agreement):

*Date of transfer:*

*Signature of grantor:* \_\_\_\_\_

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. This certificate may be transferred or made available to third persons by licensing agreements in accordance with 14 CFR 21.47. Possession of this Supplemental Type Certificate (STC) document by persons other than the STC holder does not constitute rights to the design data nor to alter an aircraft, aircraft engine, or propeller. The STC's supporting documentation (drawings, instructions, specifications, flight manual supplements, etc.) is the property of the STC holder. An STC holder who allows a person to use the STC to alter an aircraft, aircraft engine, or propeller must provide that person with written permission acceptable to the FAA. (Ref. 14 CFR 21.120).





United States of America  
Department of Transportation  
Federal Aviation Administration

# Supplemental Type Certificate

(Continuation Sheet)

Number: SR02991NY

Date Amended: October 10, 2014

## Description of Type Design Change (Continued):

1. Configuration A- Quick Release Mounting Provisions (cont)
  - b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 906.91, Revision 2 dated May 27, 2014, Transport Canada accepted June 13, 2014, or later Transport Canada accepted revisions are required for this installation.
2. Configuration B- External Cargo Basket
  - a. Installation of Quick Release Cargo basket to be done in accordance with Transport Canada approved, Aero Design Ltd. Document Control List, DCL906-2, Revision 1 dated June 2, 2014, or later Transport Canada approved revision.
  - b. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 906.90, Revision 1 dated May 27, 2014, or later Transport Canada approved revision.
  - c. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 906.92, Revision 2 dated May 27, 2014, Transport Canada accepted June 13, 2014 or later Transport Canada accepted revisions are required for this installation.

## Limitations and Conditions (Continued):

3. Cargo Basket Modifications:

Modifications to the Cargo Basket configurations eligible in accordance with Transport Canada approved, Aero Design Ltd. Document Control list DCL704, Revision 8 dated June 2, 2014, or later approved revision. Eligibility limitations are noted on the drawings.
4. The installer must determine whether this design change is compatible with previously approved modifications.
5. If the holder agrees to permit another person to use the certificate to alter a product, the holder must give the other person written evidence of that permission.

-----END-----

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. This certificate may be transferred or made available to third persons by licensing agreements in accordance with 14 CFR 21.47. Possession of this Supplemental Type Certificate (STC) document by persons other than the STC holder does not constitute rights to the design data nor to alter an aircraft, aircraft engine, or propeller. The STC's supporting documentation (drawings, instructions, specifications, flight manual supplements, etc.) is the property of the STC holder. An STC holder who allows a person to use the STC to alter an aircraft, aircraft engine, or propeller must provide that person with written permission acceptable to the FAA. (Ref. 14 CFR 21.120).



Transport  
Canada

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Edmonton Operations, Engineering  
1100, 9700 Jasper Avenue, N.W.  
Edmonton, Alberta T5J 4E6

Your file      Votre référence

Tuesday, November 25, 2014

Our file      Notre référence  
**C-14-0634**  
**SH10-48, Issue #2**

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada, T2E 6R7

<b>SUBJECT:</b>	<b>Approval of</b>	<b>Installation of Quick Release Mounting Provisions; Installation of Quick Release Cargo Basket</b>
	<b>FAA STC:</b>	<b>SR02991NY</b>
	<b>Aircraft:</b>	<b>R44, R44II</b>
	<b>FAA STC Holder:</b>	<b>Aero Design Ltd.</b>

Enclosed is the original FAA Supplemental Type Certificate SR02991NY and information concerning your responsibility as a holder of a Supplemental Type Certificate SH10-48, Issue #2 issued to a Canadian Applicant.

Yours truly,

Technologist, Engineering  
Prairie and Northern Region

Phone: 780-495-5227  
E-Mail: [Jack.Staal@tc.gc.ca](mailto:Jack.Staal@tc.gc.ca)

Encl.

# Canada

02-0042 (0802-06)

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31

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ATTN: JEFF CLARKE  
AERO DESIGN LTD  
9888A MALASPINA ROAD  
POWELL RIVER BC  
V8A 0G3

Transport Canada  
1100 - 9700 Jasper Avenue  
Canada Place  
Edmonton AB T5J 4E6

PB031 1924061  
008009 PaB7Z  
0620 131632





Department of Transport

# Supplemental Type Certificate

This approval is issued to:

Aero Design Ltd.  
9888A Malaspina Road  
Powell River, British Columbia  
Canada V8A 0G3

**Number:** SH10-48

**Issue No.:** 2

**Approval Date:** October 21, 2010

**Issue Date:** June 19, 2014

**Responsible Office:** Prairie and Northern  
**Aircraft/Engine Type or Model:** ROBINSON R44, R44 II  
**Canadian Type Certificate or Equivalent:** H-97 (ROBINSON R44, R44 II)

**Description of Type Design Change:** Installation of Quick Release Mounting Provisions; Installation of Quick Release Cargo Basket

**Installation/Operating Data,  
Required Equipment and Limitations:**

**Configuration A - Quick Release Mounting Provisions:**

Installation of Quick Release Mounting Provisions to be completed in accordance with Transport Canada approved, Aero Design Ltd. Document Control List, DCL906-1, Revision 1, dated 2 June 2014, or later approved revision.

Transport Canada accepted, Aero Design Ltd. Instructions for Continued Airworthiness ICA 906.91, Revision 2, dated 27 May 2014, or later approved revision is required with this installation.

Quick Release Mounting Provisions installed in accordance with DCL906-1 may remain installed if a cargo basket configuration is removed. Mounting beams may be removed leaving attachment fittings in place on the landing gear.

**Conditions:** This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.



F.J.B. Wright  
For Minister of Transport



Transport  
Canada

Transports  
Canada

1100-9700 Jasper Avenue  
Edmonton, Alberta T5J 4E6

Your file      Votre référence

June 19, 2014

Our file      Notre référence  
C-14-0519  
SH10-48

Aero Design Ltd.  
9888A Malaspina Road  
Powell River, British Columbia  
Canada, V8A 0G3

**ATTENTION: JEFF CLARKE**

**SUBJECT:      REVISION TO SUPPLEMENTAL TYPE CERTIFICATE NO. SH10-48  
ISSUE 2 DATED JUNE 19, 2014 - INSTALLATION OF QUICK RELEASE  
MOUNTING PROVISIONS; INSTALLATION OF QUICK RELEASE CARGO  
BASKET – ROBINSON R44, R44 II – ISSUED TO AERO DESIGN LTD.**

Dear Sir:

This Supplemental Type Certificate (STC) is issued in response to your application. Included with the STC are the documents bearing the original Transport Canada signatures.

The transfer of this approval document in the name of another person requires the prior approval from the Minister in accordance with Canadian Aviation Regulations (CAR) 521.357.

To accomplish this modification, the requirements of CAR 561 apply if parts are manufactured.

Embodiment of this modification is considered to be a maintenance activity and the requirements of CAR 571.06(4) will apply.

An STC holder is required to report any service problem experienced with their product. Therefore, should you become aware of any defect, malfunction or failure resulting from the design change, it is your responsibility to submit a Service Difficulty Report to Transport Canada in accordance with CAR V, Division IX. Other obligations as a Design Approval Document Holder are contained in CAR 521, Division VIII.

Yours truly,

J. Staal  
Engineering Technologist, Engineering  
Civil Aviation  
Prairie and Northern Region  
Phone: 780-495-5227

Encl.

**Canada**

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>INSTALLATION DOCUMENTS</b>		
90602	Quick Release Mounting Provisions Installation	1
ICA906.91	Instructions for Continued Airworthiness	2
FMS906.90	Flight Manual Supplement	1
<b>FABRICATION DOCUMENTS</b>		
DCL906-11	Document Control List for External Attachment Provisions Fabrication	1

<b>APPROVAL:</b> <div style="display: flex; align-items: center;"> <div> <p style="font-size: small;">Transport Canada      Transports Canada</p> <p style="text-align: center;"><b>AIRCRAFT CERTIFICATION DIVISION</b></p> <p style="text-align: center; font-weight: bold; font-size: large;">APPROVED</p> <p>By <u><i>[Signature]</i></u></p> <p>Appr'l No. <u>5410-48</u></p> <p>Appr'l Date <u>2010-10-21</u></p> <p>Issue No. <u>2</u></p> <p>Issue Date <u>2014-06-19</u></p> <p style="font-size: x-small; text-align: center;">YY - MM - DD</p> </div> </div>		<p>ORIGINAL DATE: 23 September 2010</p> <p>REVISION DATE: 02 June 2014</p>	<div style="text-align: center;">   <b>Aero Design Ltd.</b>  <small>9888A Malaspina Road Powell River, BC, Canada, V8A 0G3 Tel: 604.483.2376   www.aerodesign.ca</small> </div>
<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">SHEET 1 OF 1</div> <div style="text-align: center;"> <p style="font-weight: bold; font-size: large;">Robinson R44, R44 II</p> <p style="font-weight: bold;">Quick Release Mounting Provisions Installation</p> </div> </div>		<p>Rev.</p>	
<div style="font-size: 2em; font-weight: bold;">DCL906-1</div>		<div style="font-size: 2em; font-weight: bold;">1</div>	

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>INSTALLATION DOCUMENTS</b>		
90601	Quick Release Cargo Basket Installation	1
ICA906.92	Instructions for Continued Airworthiness	2
FMS906.90	Flight Manual Supplement	1
<b>FABRICATION DOCUMENTS</b>		
DCL906-12	Document Control List for Quick Release Cargo Basket Fabrication	1

<b>APPROVAL:</b>  <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <div style="display: inline-block; text-align: center;"> Transport Canada </div> <div style="display: inline-block; text-align: center;"> Transports Canada </div> </div> <div style="text-align: center; margin-top: 10px;"> <b>AIRCRAFT CERTIFICATION DIVISION</b>  <b>APPROVED</b>  By <u><i>[Signature]</i></u>  Appr'l No. <u>SH10-48</u>  Appr'l Date <u>2010-10-21</u>  Issue No. <u>2</u>  Issue Date <u>2014-06-19</u>  <small>YY - MM - DD</small> </div>		ORIGINAL DATE: 23 September 2010 REVISION DATE: 02 June 2014	<div style="text-align: center;">   <b>Aero Design Ltd.</b>  <small>9888A Malaspina Road Powell River, BC, Canada, V8A 0G3 Tel: 604.483.2376 www.aerodesign.ca</small> </div> <div style="text-align: center; margin-top: 10px;"> <b>Robinson R44, R44 II Quick Release Mounting Provisions Installation</b> </div>
SHEET 1 OF 1		Rev.	
DCL906-2		1	



# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
	<b>FABRICATION DOCUMENTS</b>	
90620	Clamp Assemblies	1
90630	Forward Beam Assembly	1
90631	Aft Beam Assembly	1
	<b>ENGINEERING DOCUMENTS</b>	
ER906.01	Engineering Report	0
FTP906.03	Flight Test Plan and Report	0
	Flight Test Report – Transport Canada	

## APPROVAL:

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<b>APPROVED</b>		
By <u><i>[Signature]</i></u>		
Appr'l No. <u>SH10-48</u>		
Appr'l Date <u>2010-10-21</u>		
Issue No. <u>2</u>		
Issue Date <u>2014-06-19</u>		
YY - MM - DD		

ORIGINAL DATE:  
28 September 2012  
REVISION DATE:  
02 June 2014



**Aero Design Ltd.**

9888A Malaspina Road  
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SHEET 1 OF 1

**Robinson R44, R44 II  
Quick Release Mounting  
Provisions Fabrication**




**DCL906-11**

Rev.

**1**




# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>		
90610	Cargo Basket Assembly	1
90611	Basket Fabrication	1
90612	Lid Fabrication	1
90621	Basket Components - Aft Attachment Hoop	1
90622	Basket Components - Forward Attachment Hoop	1
90627	Basket Components - Placard	1
90628	Basket Components - Fitting	1
69823	Basket Components - Lug	2
49210	Basket Components - Hoop	2
49215	Basket Components - Spacer	1
49216	Basket Components - Spacer	1
84240	Lid Brace Installation	0
84255	Handle Assembly	2
84261	Handle Bar Assembly	2
84262	Basket Handle Provisions Assembly	2
84263	Lid Handle Provisions Assembly	0
84265	Handle Lever	2
84267	Handle Bracket	1
84272	Bushing	1
36273	Lid Bracket	2
36274	Bushing	3
36275	Bushing	4
36277	Handle Bar	1
36278	Spring	3
36280	Brace	3
<b>ENGINEERING DOCUMENTS</b>		
ER906.01	Engineering Report	0
FTP906.03	Flight Test Plan and Report	0
	Flight Test Report – Transport Canada	

<b>APPROVAL:</b>  Transport Canada  Transports Canada <b>AIRCRAFT CERTIFICATION DIVISION</b> <b>APPROVED</b> By <u>[Signature]</u> Appr'l No. <u>SH10-48</u> Appr'l Date <u>2010-10-21</u> Issue No. <u>2</u> Issue Date <u>2014-06-19</u> YY-MM-DD	ORIGINAL DATE: 28 September 2012 REVISION DATE: 02 June 2014	 <b>Aero Design Ltd.</b> 9888A Malaspina Road Powell River, BC, Canada, V8A 0G3 Tel: 604.483.2376 www.aerodesign.ca
	SHEET 1 OF 1	<b>Robinson R44, R44 II</b> <b>Quick Release Cargo Basket</b> <b>Basket Fabrication</b>
	<b>DCL906-12</b>	

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
	<b>INSTALLATION DOCUMENTS</b>	
70408	Installation, Hangar Wheel	1
	<b>FABRICATION DOCUMENTS</b>	
	Open Forward End Modification	
70401	(Bell 206L/407 Fixed and McDonnell Douglas MD600N Quick Release Only)	1
70402	Lid Door Modification	2
70403	Auxiliary Latch Modification	5
70404	Open Forward End Modification (Bell 206L/407 Quick Release Only)	2
70405	Lid Step Modification	4
70406	Open Forward End Modification (Eurocopter AS350/AS355 and Bell 206B Quick Release Only)	2
70407	Open Forward End Modification (Eurocopter EC135 Quick Release Only)	0
70411	Open Forward End Modification (Bell 206L/407 Large Quick Release Only)	0
70428	Assembly, Hangar Wheel	1
70438	Parts, Hangar Wheel	1
	<b>ENGINEERING DOCUMENTS</b>	
ER704.02	Engineering Report	0

<b>APPROVAL:</b>  Transport Canada  Transports Canada <b>AIRCRAFT CERTIFICATION DIVISION</b> <b>APPROVED</b> By <u><i>[Signature]</i></u> Appr'l No. <u>SH10-48</u> Appr'l Date <u>2010-10-21</u> Issue No. <u>2</u> Issue Date <u>2014-06-19</u> <small>YY-MM-DD</small>		ORIGINAL DATE: 10 May 2006 REVISION DATE: 02 June 2014	 <b>Aero Design Ltd.</b> 9888A Malaspina Road Powell River, BC, Canada, V8A 0G3 Tel: 604.483.2376 www.aerodesign.ca
SHEET 1 OF 1		<b>Cargo Basket Modifications</b>	
<b>DCL704</b>		Rev. <b>8</b>	

Aero Design Ltd.



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FMS906.90

## ROBINSON R44, R44 II

### ROTORCRAFT FLIGHT MANUAL SUPPLEMENT for the INSTALLATION of the AERO DESIGN QUICK RELEASE CARGO BASKET

Canadian Supplemental Type Certificate No. SH10-48  
FAA Supplemental Type Certificate No. SR02291NY  
EASA Supplemental Type Certificate No. \_\_\_\_\_

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory.

Section V and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Robinson R44 or R44 II when fitted with the Quick Release Cargo Basket Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement, refer to the Approved Flight Manual and other approved Flight Manual Supplements.



Revision 1  
27 May 2014

Page 1 of 7  
TRANSPORT CANADA APPROVED



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II	Normal Procedures	3
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VI	Installation / removal instructions	6

### Record of Revisions

Revision	Issue Date	Pages Revised	Date Inserted	By
0	22 Sept 2010	Original Issue		
1	27 May 2014	1,2		

## **I LIMITATIONS**

1. Only one basket may be installed at a time, on the right or left side.
2. The maximum load in the AERO Design Ltd. Quick Release Cargo Basket is 175 lb.
3. Flight operations limited to VFR conditions with AERO Design Ltd. Cargo Basket installed.
4. Maximum  $V_{NE}$  of 110 KIAS with either basket installed. Use R44 placarded  $V_{NE}$  or 110 KIAS whichever is lower.

## **II NORMAL PROCEDURES**

1. Pre-flight inspections:
  - a) Ensure that all cargo stored in the cargo basket is properly tied down and secured for flight.
  - b) Ensure that the lid of cargo basket is closed and secured.
  - c) Ensure the basket is locked in position on the beams. Pull up on the aft end of the basket to check.

### **CAUTION**

It is possible to exceed the lateral centre of gravity limits of the rotorcraft under some loading conditions. Pilots must ensure that lateral C of G is within limits when loading the basket.

## **III EMERGENCY PROCEDURES**

No change from basic Approved Flight Manual.

### **CAUTION:**

The rotorcraft glide angle is steeper than that of the basic helicopter when the AERO Design Ltd. Cargo Basket is installed.

## **IV PERFORMANCE**

Cruise performance and range will be reduced by approximately 14% percent with the cargo basket installed on either side.

Climb performance will be reduced by up to 300 fpm with the cargo basket installed on either side.

## V WEIGHT AND BALANCE

- The following weight and balance is for the quick release cargo basket configuration, installed in accordance with drawing 90601.

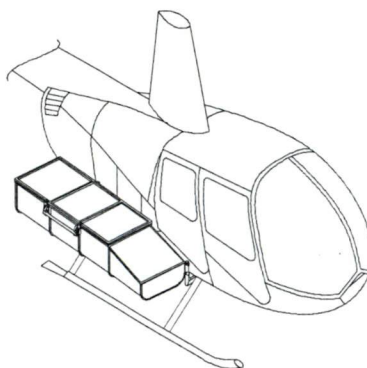


Figure 1 –Quick Release Cargo Basket Configuration

Standard P/N <sup>1</sup>	Description	Weight	Longitudinal		Lateral <sup>2</sup>	
		lb	arm in	moment in-lb	arm in	moment in-lb
90610-01-XX	Basket	41.8	112.4	4698.3	34.4	1437.9
90602-01-XX	Mounting Provisions	11.6	101.3	1174.5	7.2	84.0
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>53.4</b>	<b>110.0</b>	<b>5872.8</b>	<b>28.5</b>	<b>1521.9</b>
	Maximum Cargo <sup>3</sup> (centred in basket)	175.0	112.4	19670.0	34.4	6020.0

Metric P/N <sup>1</sup>	Description	Weight	Longitudinal		Lateral <sup>2</sup>	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
90610-01-XX	Basket	18.9	2855	53999	874	16526
90602-01-XX	Mounting Provisions	5.3	2552	13396	184	965
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>24.2</b>	<b>2789</b>	<b>67394</b>	<b>724</b>	<b>17491</b>
	Maximum Cargo <sup>3</sup> (centred in basket)	80.0	2855	228397	874	69901

<sup>1</sup> -XX indicates side. -01 is RH, -02 is LH.

<sup>2</sup> Lateral arm is negative on LH side.

<sup>3</sup> Longitudinal and Lateral moment arms are given only for the center of the Cargo Basket. Due to the length and position of the basket, some loading arrangements may require that actual moment arms be measured, to determine the correct moments about the center of gravity.

**CAUTION:**

It is possible to exceed lateral CG limits in some configurations.



## VI INSTALLATION / REMOVAL INSTRUCTIONS

The basket is installed in accordance with drawing 90601. The mounting provisions are installed in accordance with drawing 90602. Removal of the basket leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of basket and weight and balance amendment is required when basket is installed or removed.

1. Installation - Refer to Figure 2 and 3.
  1. At forward end of basket, set upper attachment fitting into keyway in forward beam. Allow basket to hang from fitting, rest aft end on ground.
  2. Raise aft end of basket to aft beam, sliding basket aft, and lift until lower attachment fitting hits stop over keyway.
  3. Push fitting into lower keyway, ensure top fitting enters top keyway, and slide basket down until locked.

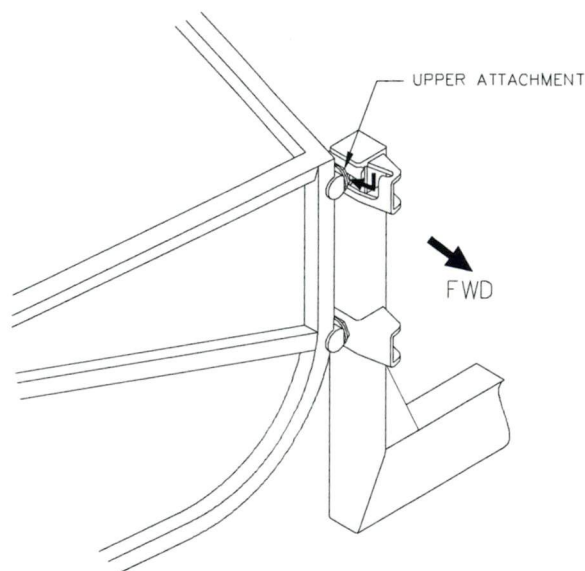


Figure 2 – Basket Forward Attachment

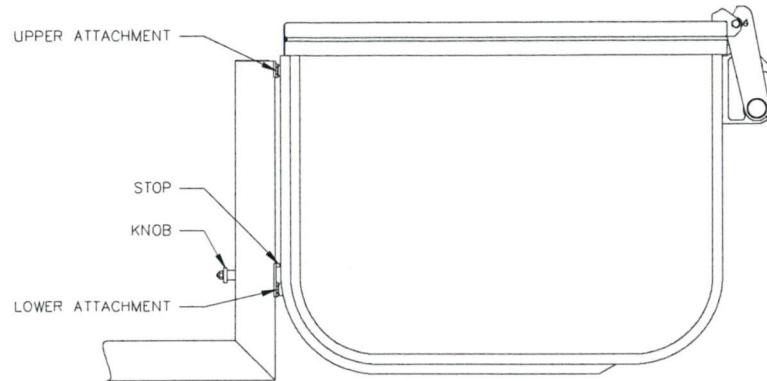


Figure 3 – Basket Aft Attachment

2. Removal - Refer to Figure 2 and 3.
  1. Pull knob at bottom end of aft beam and lift basket until attachment fittings are free of keyways. Rest aft end of basket on ground.
  2. Slide basket forward and lift attachment fitting out of keyway on forward beam.

**CERTIFICATION PLAN**  
**CP906**

---

**ROBINSON R44, R44 II**

**EXTERNAL CARGO BASKET**  
**REVISION TO UPDATE HOLDER**

Prepared by: Jeff Clarke, P.Tech.(Eng.)

Revision 1, 23 May 2014  
(replaces Compliance Program CP906, Rev. 0)

---

Aero Design Ltd.



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[www.aerodesign.ca](http://www.aerodesign.ca)

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## 1.0 INTRODUCTION

This certification plan details the means and methods of compliance for the Airworthiness Requirements shown on the Compliance Program (Appendix A).

This reissue of approval SH10-48 to issue 2 is to update the holder address and incorporate minor design changes into the approval. Application for an EASA STC and amendment to FAA STC SR02991NY will follow reissue of the Canadian approval.

## 2.0 PROJECT DESCRIPTION

Installation of quick release mounting provisions on the landing gear cross tubes. The provisions consist of a pair of stainless steel mounting beams attached with aluminum clamps to the cross tube corner fittings. The configuration is similar in construction to the approved Eurocopter AS350 Cargo Basket configuration.

Installation of a cargo basket on the mounting provisions. The cargo basket uses the same construction and attachment means as other approved Aero Design Ltd. baskets.

## 3.0 BASIS OF CERTIFICATION

TCDS H-97, Issue 7:

As per H11NM plus Canadian Airworthiness Manual Chapter 527 change 527-2, dated 1 February, 1992 for the following paragraphs:

527.1301-1 Rotorcraft operations after Ground Cold Soak

527.1557(c)(3) Miscellaneous Markings and Placards

527.1583(h) Operating Limitations -Ambient Temperature

H11NM Revision 6:

14 CFR Part 27, dated February 1, 1965, including Amendments 27-1 through 27-24, Exemption No. 5473 dated July 2, 1992, to §27.955(a)(7) and 27.1305(q), and Exemption No. 6692 dated October 17, 1997 to §27.695.

Note that the Robinson R44 qualifies as an excepted product to Changed Product Rule in accordance with CAR 521.158(6).

## 4.0 APPLICABILITY OF AIRWORTHINESS DIRECTIVES

Airworthiness Directives applicable to the Robinson R44 and R44 II were reviewed on 23 May 2014, and none were found to affect this project.

## 5.0 PERSONNEL

Applicant: Aero Design Ltd. – Jeff Clarke, P.Tech.(Eng.)

Delegate: None – no changes to findings of compliance, see section 5.0 and 6.0

Transport Canada: Jack Staal, PNR Region

## 6.0 CERTIFICATION PLAN

Re-issue of the approval is to reflect the change of address of the holder. Minor changes to the approved drawings are also incorporated at this issue. Evaluation of the changes is addressed in Section 6.0. There are no changes to the design data that invalidate the existing findings of compliance.

### 6.1 CAR 527 Subpart G – Operating Limitations and Information

Paragraphs 527.1505, .1525, .1581, .1583, .1585, .1587, .1589

#### 6.1.1 Means of Compliance

a) Test

#### 6.1.2 Method of Compliance

a) TCCA Flight Test

#### 6.1.3 Compliance Documents, Data and Testing

Flight Test Report – prepared by Michel Brulotte – contains performance information (existing)

Flight Manual Supplement FMS906.90 to Revision 1 – revision to update approval numbers on cover only. ✓ ok

#### 6.1.4 Schedule

FMS906.90 submit to TC for review by 06 June 2014

#### 6.1.5 Level of Delegation

None

#### 6.1.6 Level of Involvement / *Service*

Deliverable	Transport Canada Level of Involvement / <i>Service</i>
FMS906.90	Requires Transport Canada review and approval

### 6.2 527.1529

#### 6.2.1 Means of Compliance

a) Instructions for Continued Airworthiness provided

#### 6.2.2 Method of Compliance

a) Instructions for Continued Airworthiness are prepared in accordance with CAR 527 Appendix A

### 6.2.3 Compliance Documents, Data and Testing

Instructions for Continued Airworthiness ICA906.91 to Revision 2 – Mounting Provisions

Changes from TCCA accepted Revision 1:

1. Cover: Contact information updated ✓ OK + Del
2. Section 0-3: Contact information updated ✓ OK
3. Section 4: Add EASA limitation statement ✓ OK
4. Section 5-3: Protective treatment updated to reference R44 Maintenance Manual for paint touch up ✓ OK
5. Section 25: Update hardware part numbers (AN960 to NAS1149 etc.), metric torque specs added ✓ OK

Instructions for Continued Airworthiness ICA906.92 to Revision 2 – Cargo Basket

Changes from TCCA accepted Revision 1:

1. Cover: Contact information updated ✓ OK + Del
2. Section 0-3: Contact information updated ✓ OK
3. Section 4: Add EASA limitation statement ✓ OK
4. Section 5-1: Add inspection for lid prop to annual inspection ✓ OK
5. Section 5-3: Protective treatment updated to reference R44 Maintenance Manual for paint touch up ✓ OK
6. Section 11: Add new placard configuration for updated contact information ✓ OK
7. Section 25: Update hardware part numbers, metric torque specs added ✓ OK
8. Section 25-4: Add procedure for replacing handle springs ✓ OK
9. Section 25-5: Add procedure for replacing lid prop ✓ OK
10. Section 25-8 added

### 6.2.4 Schedule

ICA906.91, ICA906.92 – submit to TC for review by 06 June 2014

### 6.2.5 Level of Delegation

None

### 6.2.6 Level of Involvement / Service

Deliverable	Transport Canada Level of Involvement / Service
ICA906.91	Requires Transport Canada review and acceptance
ICA906.92	Requires Transport Canada review and acceptance



## **7.0 EFFECT OF CHANGES ON EXISTING FINDINGS OF COMPLIANCE**

All documents - excluding engineering reports, load test reports, flight test reports or similar documents - are revised to incorporate the new company contact information and logo, which does not affect any finding of compliance. Changes beyond the address and logo are addressed below. A list of all changed documents is in Appendix B.

### **7.1 General**

The following changes are made on a number of drawings as indicated on the drawing.

Change: Hardware part numbers updated to current (e.g. AN960 Washer part numbers updated to NAS1149).

Reason: Update to current part numbers.

Effect: None.

Change: HuckMax rivets added as alternative to CherryMax rivets.

Reason: HuckMax rivets provide better forming of the rivet tail.

Effect: None. Both fasteners meet the requirements of NAS9301.

### **7.2 Document Control List DCL906-1 to Revision 1 – Mounting Provisions Installation**

FMS906.90 to Revision 1 addressed in section 5.0 above. Requires TCCA approval.

ICA906.91 to Revision 2 addressed in section 5.0 above. Requires TCCA acceptance.

### **7.3 Document Control List DCL906-2 to Revision 1– Cargo Basket Installation**

FMS906.90 to Revision 1 addressed in section 5.0 above. Requires TCCA approval.

ICA906.92 to Revision 2 addressed in section 5.0 above. Requires TCCA acceptance.

### **7.4 Document Control List DCL906-11 to Revision 1 – Mounting Provisions Fabrication**

#### **7.4.1 Drawing 90620 to Revision 1 – Attachment Fittings**

Change: Alternate finish of hard anodizing per MIL-A-8625F added.

Reason: Hard anodizing provides for better resistance to mechanical damage than paint, which in turn provides for better corrosion resistance.

Effect: The part has improved corrosion resistance properties over the approved configuration.

#### **7.4.2 Drawing 90630 to Revision 1 – Forward Mounting Beam**

Change: Web added across slot in upper hook (item 11).

Reason: The web increases the contact area for welding the hook to the beam.

Effect: Strength increased over approved configuration. Weight change is negligible.

Change: Support tube parts separated (item 04).

Reason: Change provides a part number for the support tube sub-assembly.

Effect: None.

Change: Bracket added (item 10).

Reason: Original configuration specified two dimensionally similar, but different parts with the same part number. Change gives each part its own number.

Effect: None.

Change: Material for caps (items 07, 08, 09) changed from 0.032" 321 stainless steel to 0.050" 304 stainless steel.

Reason: Increased thickness is easier to weld to the heavier wall of the tubing (0.063"). 304 material is easier to procure than 321.

Effect: Caps are non-structural. Weight change is negligible.

Change: Material for strap (item 14) thickness changed from 0.100" to 0.125"

Reason: 0.125" easier to procure than 0.100".

Effect: Strength increased over approved configuration. Weight change is negligible.

#### **7.4.3 Drawing 90631 to Revision 1 – Aft Mounting Beam**

Change: Length of down tube (item 03) increased from 16.06" to 16.44"; length of pad (item 18) increased to suit; length of slot in pad increased to suit.

Reason: Easier to hook basket into longer slot and engage in lower keyway on installation.

Effect: Larger pad provides greater weld length to transfer load into down tube. Strength increased over approved configuration. Weight change is negligible.

Change: Length of pad (item 10) increased from 1.69" to 1.81".

Reason: Stop block (item 13) is welded over keyway in pad. The weld at the top of the pad into the tube removes some of the material where the stop block sits, which no longer provides a flat surface. The change increases the length of the pad to provide a flat surface for the stop block.

Effect: Added section is above wide diameter of keyway, it does not support the basket loads. Weight change is negligible.

Change: Support tube parts separated (item 04). Carry over from 90630, Rev. 1.

Change: Material for caps (items 07, 08, 09) changed from 0.032" 321 stainless steel to 0.050" 304 stainless steel. Carry over from 90630, Rev. 1.

Change: Material for strap (item 12) thickness changed from 0.100" to 0.125". Carry over from 90630, Rev. 1.

## **7.5 Document Control List DCL906-12 to Revision 1 – Cargo Basket Assembly**

### **7.5.1 Drawing 90610 to Revision 1 – Cargo Basket Assembly**

Change: Hinge length corrected from 53.5" to 54".

Reason: Hinge must be cut to full inch lengths to be symmetrical to allow rivets to land on lug locations of hinge when drilled with jigs.

Effect: None.

Change: Lid prop assembly (part number 36280-01) changed to lid prop installation (part number 84240-01).

Reason: Fasteners for installing the lid prop were not specified on the original drawing. Installation of the lid prop is the same for all baskets, and this drawing can be supplied with replacement parts.

Effect: None.

### **7.5.2 Drawing 90611 to Revision 1 – Basket Body Fabrication**

Change: # of welds down sides increased from first 2 intersections to first 5 intersections.

Reason: Standardization with other baskets.

Effect: Better load transfer from mesh into frame over approved configuration.

Change: Reference dimensions added.

Reason: Easier fabrication of components.

Effect: None.

Change: Stainless steel welding rod added to welding notes.

Reason: Lid prop lug material changed to stainless steel - see drawing 49215, Rev. 1.

Effect: None.

### **7.5.3 Drawing 90612 to Revision 1 – Basket Lid Fabrication**

Change: # of welds down braces increased from every 3<sup>rd</sup> intersection to first 5 then every 2<sup>nd</sup> intersection

Reason: Standardization with other baskets.

Effect: Better load transfer from mesh into frame over approved configuration.

Change: Stainless steel welding rod added to welding notes.

Reason: Approved configuration uses stainless steel for lid handle brackets. Lid prop lug material changed to stainless steel - see drawing 49216, Rev. 1.

Effect: None.



#### **7.5.4 Drawing 90621 to Revision 1 – Attachment Hoop Fabrication**

Change: Provisions for handle in accordance with drawing 84262 added.

Reason: Provisions for handle are shown on basket body fabrication drawing 90611, but the hoop is made prior to fabrication in accordance with drawing 90611, and the provisions are easier to install before the hoop is assembled.

Effect: None.

Change: Part number for transition cap (90621-06) changed to 76423-04.

Reason: Same part, 76423-04 used on all other drawings with this configuration.

Effect: Non-structural cap.

#### **7.5.5 Drawing 84240 to Revision 0 – Lid Prop Installation**

Change: New drawing.

Reason: Installation of the lid prop is the same for all baskets, and this drawing can be supplied with replacement parts.

Effect: None.

#### **7.5.6 Drawing 84262 to Revision 2 – Basket Handle Provisions Assembly**

Change: Move lid handle provisions to drawing 84263.

Reason: Basket and lid assembled separately, more detail for lid assembly (see 84263).

Effect: None.

#### **7.5.7 Drawing 84263 to Revision 0 – Lid Handle Provisions Assembly**

Change: New drawing.

Reason: Lid bracket sub-assembly identified with a part number to allow fabrication and tracking independent of basket.

Effect: None.

#### **7.5.8 Drawing 49215 to Revision 1 and 49216 to Revision 1 – Lid Prop Spacers**

Change: Alternate 304 stainless steel material added

Reason: Lid prop wears powder coating off flange of spacers, causing corrosion on mild steel part. Stainless steel material corrects this problem.

Effect: None.



### **7.5.9 Drawing 36273 to Revision 2 – Lid Bracket**

Change: Material changed from 321 to 304 stainless steel.

Reason: Easier to procure 304 stainless steel.

Effect: None. Bracket is pivot point for handle, stop for handle when opening lid, and catch for spring to hold handle down.

Change: Hole for support (see 36275) reduced from 0.313" to 0.130"

Reason: Hole is to weld support to bracket. It is easier to weld parts of similar thickness. New size allows the parts to be fused without filler rod.

Effect: None. Support is stop for handle when opening lid, and catch for spring to hold handle down.

### **7.5.10 Drawing 36275 to Revision 4 – Bushing and Support**

Change: Material of bushing (item 01) changed from bronze to brass

Reason: Part has always been brass, incorrect material specified.

Effect: None. Bushing is for handle to rotate on.

Change: Tip of support (item 02) reduced from 0.313 to 0.125"

Reason: Tip is welded to bracket (see 36273). It is easier to weld parts of similar thickness.

Effect: None. Support is stop for handle when opening lid, and catch for spring to hold handle down.

## **7.6 Document Control List DCL704 to Revision 8 – Basket Modifications**

### **7.6.1 Drawing 70402 to Revision 2 – Lid Door Modification**

Change: Model list updated to show excluded models instead of eligible models.

Reason: This installation is eligible for all models of basket except as shown. The drawing will not need to be revised with every new model of basket, only those that must not use the modification.

Effect: None.

### **7.6.2 Drawing 70403 to Revision 5 – Auxiliary Latch Modification**

Change: Model list updated to remove individual models except as shown.

Reason: All models use configuration B except the models shown due to the different shape of the forward end. The drawing will not need to be revised with every new model of basket.

Effect: None.

Change: Part numbers updated.

Reason: Component parts referred to a different drawing, all parts are shown on this drawing.

Effect: None.

- Change: Material for tab (item 04) changed from 4130 steel to 304 stainless steel.
- Reason: The tabs protrude from the basket lid where it is vulnerable to having the powder coating chipped off, leading to corrosion. Change to stainless steel material prevents corrosion.
- Effect: The part is less vulnerable to corrosion. The tabs are lightly loaded as they are for a secondary rubber catch for the lid, in addition to the handle in the basic approved configuration. The opposite end of the catch is plastic. Either the plastic or rubber parts will fail before the stainless steel tabs.
- Change: Welding notes added.
- Reason: No welding information provided on previous revision.
- Effect: None.

### **7.6.3 Drawing 70405 to Revision 4 – Lid Step Modification**

- Change: Model list removed.
- Reason: It was not expected that a lid step would be requested on the R44 basket, as the only part that can be inspected from the basket is the rotor head, however a request was received for this modification. The drawing will not need to be revised with every new model of basket.
- Effect: None.
- Change: Add note 7 allowing width of step to match lid door in accordance drawing 70402. Width increases from 6" to 7.5".
- Reason: Aesthetics, allows the lid door and step to look continuous when the door is down.
- Effect: None.

### **7.6.4 Drawing 70408 to Revision 1 – Hangar Wheel Modification**

- Change: Title corrected to "Hangar Wheel" (drawings 70408, 70428 and 70438)
- Reason: Title was "Hanger Wheel®". Aero Design does not have a registered trademark on the name.
- Effect: None.

### **7.6.5 Drawing 70428 to Revision 1 – Hangar Wheel Assembly**

- Change: Hangar wheel base sub-assembly removed
- Reason: Sub-assembly was screws threaded into base plate to be used as studs. The screws were not retained sufficiently to install nuts without a screwdriver, defeating the purpose. Threaded holes changed to through holes, see 70438.
- Effect: None.

### **7.6.6 Drawing 70438 to Revision 1 – Hangar Wheel Modification**

Change: Chamfer at tube intersection increased from 0.125" to 0.25"

Reason: 0.125" chamfer did not provide sufficient clearance from weld bead on all baskets.

Effect: None.

Change: Threaded holes changed to through holes.

Reason: See sub-assembly comment above.

Effect: None.

Change: Alternate finish of hard anodizing per MIL-A-8625F added.

Reason: Hard anodizing provides for better resistance to mechanical damage than paint, which in turn provides for better corrosion resistance.

Effect: The part has improved corrosion resistance properties over the approved configuration.

## **APPENDIX A**

### **COMPLIANCE PROGRAM**



APPLICANT: Aero Design Ltd.  
9888 A Malaspina Road  
Powell River, BC, Canada  
V8A 0G3

DATE: 0 05 August 2010 (Original)  
REVISION No. 1 23 May 2014

MAKE: Robinson  
MODEL: R44, R44 II

CORRESPONDANCE TO:  
(If other than applicant)

REGISTRATION: All Eligible  
SERIAL No.: All Eligible

NATURE OF WORK: Quick Release Mounting Provisions Installation; Quick Release Cargo Basket Installation

TYPE CERTIFICATE DATA SHEET: H-97, Issue 7

MODEL CERTIFICATION BASIS: FAR 27 dated 1 February 1965, including amendments 27-1 thru 24-24

MODIFICATION CERTIFICATION BASIS: FAR 27 dated 1 February 1965, including amendments 27-1 thru 24-24

Airworthiness Requirement	Change from CP Rev. 0	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
<b>Subpart B</b>		<b>Flight</b>				
27.29	No ✓	Empty Weight and Corresponding C of G	Data specified on inst'n drawing			
27.51	No	Takeoff	Flight Test			
27.65	No	Climb: All Engines Operating	Flight Test			
27.71	No	Gliding Performance	Flight Test			
27.75	No	Landing	Flight Test			
27.141	No	Flight Characteristics – General	Flight Test			
27.143	No	Controllability and Maneuverability	Flight Test			
27.151	No	Flight controls	Flight Test			
27.161	No	Trim Control	Flight Test			
27.171	No	Stability – General	Flight Test			
27.173	No	Longitudinal Stability	Flight Test			
27.175	No	Demonstration of Longitudinal Stability	Flight Test			
27.177	No	Static Directional Stability	Flight Test			
27.241	No	Ground Resonance	Flight Test			
27.251	No	Vibration	Flight Test			
<b>Subpart C</b>		<b>Strength Requirements</b>				
27.301	No	Loads – Air Drag Loads	Analysis			

↑  
gp.  
↓  
gp.

Revision 1 does not change or affect flight compliance.

Airworthiness Requirement	Change from CP Rev. 0	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
27.301	No	Loads – Inertia Loads	Compliance with 27.337 and 27.561	↑		
27.303	No	Factor of Safety	Analysis			Minor changes do not affect structural compliance.
27.305	No	Strength and Deformation	Analysis and Test			
27.307	No	Proof of Structure	Analysis and Test			
27.337	No	Limit Maneuvering Load Factor	Analysis and Test	Ⓟ		
27.547	No	Main Rotor Structure	Flight Test	↓		Critical load factor in downward direction, up load condition applied to security of lid and latching mechanism. Must bending consideration. Cargo basket and cargo are external to cabin, forward deflection or failure of basket poses no threat to occupants
27.561	No	Emergency Landing Conditions	N/A	↓		
<b>Subpart D</b> ✓		<b>Design and Construction</b>		↑		
27.601	No	Design	Drawings			Design is conventional. Materials used are specified in Mil-Hdbk-5H. Design is conventional.
27.603	No	Materials	Drawings			
27.605	No	Fabrication Methods	Drawings			
27.609	No	Protection of Structure	Drawings			
27.611	No	Inspection Provisions	Drawings			Design is easy to inspect.
27.613	No	Material Strength Properties and Design Values	Values used as per Mil-Hdbk-5H	Ⓟ minor improvements		
27.625	No	Fitting Factor	Analysis	↓		Installation does not block doors.
27.783	No	Doors	N/A	↓		
27.787(a)	No	Cargo and Baggage Compartments	Compliance with 23.301 through 307	Ⓟ		Basket is a closed container. Cargo is external to helicopter.
27.787(b)	No	Cargo and Baggage Compartments	Design	Ⓟ		
27.787(c), (d)	No	Cargo and Baggage Compartments	N/A			Installation does not block doors.
27.807	No	Emergency Exits	N/A			
27.865	No	External Load Attaching Means	N/A			Cargo basket is classified as a cargo compartment.
27.1387	No	Position Light System Dihedral Angles	N/A			No change from Type Approval. No change from Type Approval.
27.1401	No	Anticollision Light System	N/A			
<b>Subpart G</b> ✓		<b>Operating Limitations and Information</b>				
27.1505	No	Never Exceed Speed	Flight Test, Flight Manual Supplement	Ⓟ		V <sub>NE</sub> limits as specified in the existing Flight Manual Supplement (110 kts.)

Airworthiness Requirement	Change from CP Rev. 0	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
✓ 27.1525	No	Kinds of Operation	Flight Manual Supplement			Limited to VFR only.
27.1529	Yes	Instructions for Continuing Airworthiness	ICA Provided	X <sub>sp</sub>		
27.1557(a)	No	Miscellaneous Markings and Placards – Baggage Compartments	Placard			
27.1557(b)	No	Miscellaneous Markings and Placards	N/A			
27.1557(c)	No	Miscellaneous Markings and Placards	N/A			
27.1557(d)	No	Miscellaneous Markings and Placards	N/A			
✓ 27.1581	Yes	Rotorcraft Flight Manual – General	Flight Manual Supplement	X <sub>sp</sub>		
27.1581(e)	No	Rotorcraft Flight Manual – General - Units	Flight Manual Supplement			SI and imperial units included
27.1583(c)	No	Operating Limitations – Weight and Loading Information	Flight Manual Supplement			
27.1585	No	Operating Procedures	Flight Manual Supplement			
27.1587	No	Performance Information	Flight Manual Supplement			
27.1589	No	Loading Information	Flight Manual Supplement & Placard			Placard installed on basket lid
<b>Canadian Airworthiness Manual Chapter 527, change 527-2, dated 1 February 1992</b>						
527.1301-1	No	Rotorcraft Operations After Ground Cold Soak	N/A			
527.1557(c) (3)	No	Miscellaneous Marking and Placards	N/A			Not a fuel tank
527.1583(h)	No	Operating Limitations – Ambient Temperature	N/A			No change from Type Approval

Items of compliance that are marked "\*\*\*" indicate paragraphs for which extension of delegation is requested.

## **APPENDIX B**

### **LIST OF CHANGED DOCUMENTS**



Number	Title	Rev (current approved)	Rev (new)	Description of change
SH10-48	Transport Canada STC	1	2	New address, changes below
	EASA STC			New
SR02991NY	FAA STC	original	(amend)	New address, changes below
CP906	Certification Plan - Including compliance program	0	1	Shows changes from TC accepted TC accepted CP906 Rev. 0
<b>DCL906-1</b>	<b>Document Control List - Mounting Provisions Installation</b>	0	1	Changes below, new address
90602	Mounting Provisions Installation	0	1	TB (Title block updated for new address), hardware updated
FMS906.90	Flight Manual Supplement - Cargo Basket	0	1	Approval #'s on cover
ICA906.91	Instructions for Continued Airworthiness - Mounting Provisions	1	2	New address, added instructions
<b>DCL906-2</b>	<b>Document Control List - Cargo Basket Installation</b>	0	1	Changes below, new address
90601	Cargo Basket Installation	0	1	TB
FMS906.90	Flight Manual Supplement - Cargo Basket	0	1	Approval #'s on cover
ICA906.92	Instructions for Continued Airworthiness - Cargo Basket	1	2	New address, added instructions
<b>DCL906-11</b>	<b>Document Control List - Mounting Provisions Fabrication</b>	0	1	Changes below, new address
90620	Clamp Assemblies	0	1	TB, add alternate anodize finish
90630	Forward Beam Assembly	0	1	TB, upper hook , support tube ass'y (item 04), bracket added (item 10), material changed (item 07/08/09/14)
90631	Aft Beam Assembly	0	1	TB, down tube + pad pads longer, mat'l changed (item 07/08/09/12)
ER906.01	Engineering Report	0	0	No change
FTP906.03	Flight Test Plan and Report	0	0	No change
<b>DCL906-12</b>	<b>Document Control List - Basket Assembly</b>	0	1	Changes below, new address
90610	Cargo Basket Assembly	0	1	TB, hinge, h/w p/n's updated, add lid prop drawing 84240
90611	Basket Fabrication	0	1	TB, # welds down side, welding rod for s/s, ref dims added
90612	Lid Fabrication	0	1	TB, # welds down braces, welding rod for s/s
90621	Basket Components - Aft Attachment Hoop	0	1	TB, handle provisions added, cap P/N updated
90622	Basket Components - Forward Attachment Hoop	0	1	TB
95927	Basket Components - Placard	0	1	TB, logo and address on placard
95928	Basket Components - Fitting	--	1	Omitted on original DCL, TB

Number	Title	Rev	Rev	Description of change
<b>DCL906-12</b>	(Continued)	(current approved)	(new)	
69823	Basket Components - Lug	1	2	TB
49210	Basket Components - Hoop	1	2	TB
49215	Basket Components - Spacer	0	1	TB, material
49216	Basket Components - Spacer	0	1	TB, material
84240	Lid Prop Installation	--	0	New drawing - details were missing from 90610, Rev. 0
84255	Handle Assembly	0	2	TB
84261	Handle Bar Assembly	0	2	TB
84262	Basket Handle Provisions Assembly	0	2	TB, lid provisions moved to 84263
84263	Lid Handle Provisions Assembly	--	0	New drawing - gives bracket assembly a P/N
84265	Handle Lever	1	2	TB
84267	Handle Bracket	0	1	TB
84272	Bushing	0	1	TB
36273	Lid Bracket	1	2	TB, alternate 304 stainless material
36274	Bushing	2	3	TB
36275	Bushing	3	4	TB, material specs added, bushing (01) material, tip of support (02) reduced
36277	Handle Bar	0	1	TB
36278	Spring	2	3	TB
36280	Brace	2	3	TB
ER959.01	Engineering Report - Basket Installation	0	0	No change
ER959.02	Engineering Report - Load Test	0	0	No change
ER842.01	Engineering Report - Handle Assembly	0	0	No change
	Flight Test Report - Transport Canada	--	--	No change
<b>DCL704</b>	<b>Document Control List - Modifications</b>	6	8	Changes below, new address
	Open Forward End Modification - B206L/407 Fixed and			
70401	MD600N only	1	1	Not applicable
70402	Lid Door Modification	1	2	TB, model list
70403	Auxiliary Latch Modification	3	5	TB, model list, P/Ns updated, tab (04) material, welding notes
	Open Forward End Modification - B206L/407 Quick			
70404	Release only	1	2	Not applicable, change at Rev. 7
70405	Lid Step Modification	2	4	TB, model list, alternate rivet, note 7
70406	Open Forward End Modification - AS350 and B206B only	1	2	Not applicable, change at Rev. 7
70407	Open Forward End Modification - EC135 only	0	0	Not applicable
70408	Installation, Hangar Wheel	0	1	TB, hardware, typo

Number	Title	Rev	Rev	Description of change
<b>DCL906-12</b>	(Continued)	(current approved)	(new)	
	Open Forward End Modification - B206L/407 Quick			
70411	Release only	--	0	Not applicable, added at Rev. 7
70428	Assembly, Hangar Wheel	0	1	TB, hardware, subassembly removed
70438	Parts, Hangar Wheel	0	1	TB, chamfer, hole, anodizing

**MSI 53 – Review of Supplemental Instructions for Continued Airworthiness**

**APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527**

**BLOCK 1**

<b>Name of the applicant for the design change approval:</b>	<b>Aero Design Ltd.</b>
<b>Description of the design change:</b>	<b>Installation of Quick Release Mounting Provisions on Robinson R44, R44 II</b>
<b>Certification Basis of design change and revision date:</b>	<b>FAR 27, Amendment 27-24</b>
<b>CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:</b>	<div style="text-align: center;">✓</div> <b>Section 0-3 of Supplemental ICA (ICA 906.91, Rev. 2)</b>
<b>CAR Standard 513.05 (1) (g) (iv): Installation Instructions:</b>	<b>Installation Drawing 90602, Rev. 1</b>

**BLOCK 2**

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.2 (a) Manual(s)</b> (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Single Manual (ICA906.91, Rev. 2)
<b>A527.2 (b) Practical arrangement</b> (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Arranged in ATA format
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (a) Rotorcraft maintenance manual or section</b>		
<b>A527.3 (a) (1) (Introduction)</b> (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.000	Supplemental ICA ref: Section 0-1
<b>A527.3 (a) (2) (Description)</b> (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.007	Supplemental ICA ref: Section 0-5



**MSI 53 – Review of Supplemental Instructions for Continued Airworthiness**

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (a) (3) Control &amp; Operation</b> (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (a) (4) Servicing</b> (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.100	Supplemental ICA ref: N/A
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (b) Maintenance Instructions.</b>		
<b>A527.3 (b) (1) Scheduling</b> 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.101	Supplemental ICA ref: Section 5-1
<b>A527.3 (b) (2) Troubleshooting</b> (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

**MSI 53 – Review of Supplemental Instructions for Continued Airworthiness**

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (b) (3) Removal/replacement</b> (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 4	Supplemental ICA ref: Section 25-1 and 25-2
<b>A527.3 (b) (4) General</b> (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.200	Supplemental ICA ref: Section 25-4
<b>A527.3 (c) Access</b> (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (d) Special inspections</b> (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-1
<b>A527.3 (e) Protective treatment</b> (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-3
<b>A527.3 (f) Fasteners, torque values, etc</b> (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.300	Supplemental ICA ref: Section 25-5
<b>A527.3 (g) Special tools</b> (g) A list of special tools needed.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 16	Supplemental ICA ref: N/A

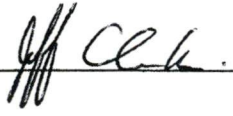
## MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

### BLOCK 3

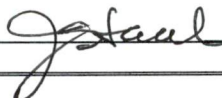
Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

<b>A527.4 AWL - Separate Section 1</b> The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, single page before Section 1	Supplemental ICA ref: Chapter 4  <div style="text-align: right; font-family: cursive;">                     ✓      FAR / EASA ALSO                 </div>
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### BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.	
Applicants Signature: <u></u>	Date: <u>02 June 2014</u>
Applicants Name: <u>Jeff Clarke, Vice President</u>	

### BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.			
Reviewer's Name: <u>JACK STAAL</u>	Phone # <u>780-495-5227</u>	Email: <u>jack.staal@tc.gc.ca</u>	Mail Routing Symbol: <u>RAX1</u>
Signature: <u></u>	Date: <u>13 JUNE 2014</u>	NAPA Number: <u>C-14-0519</u>	



## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 906.91

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### QUICK RELEASE MOUNTING PROVISIONS

### ROBINSON R44, R44 II

#### Preface

These Instructions for Continued Airworthiness shall be included in the Robinson R44 Maintenance Manual when the External Attachment Provisions are installed in accordance with Aero Design Ltd. Document Control List DCL906-1, Revision 1, or later approved revision.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 2  
Date: 27 May 2014

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Aero Design Ltd.



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**RECORD OF REVISIONS**

Revision Number	Issue Date	Date Inserted	By
0			Original Issue
1	20 June 2011		
2	27 May 2014		

**LIST OF EFFECTIVE PAGES**

List of Revisions	Revision 0 (Original Issue)	22 September 2010
	Revision 1	20 June 2011
	Revision 2	27 May 2014

## List of Effective Pages

<u>Title</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	2
Revision Record/List of Effective Pages	2	2
Table of Contents	3	0
00-00-00	4	2
04-00-00	5	2
05-00-00	6	0
	7	2
25-00-00	8-12	2
	13	0

**NOTE**

Revised text is indicated by a black vertical line. A revised page with only a vertical line next to the page number indicates that text has shifted or that non-technical correction(s) were made on that page. Insert latest revision pages; dispose of superseded pages.

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## CHAPTER 0 – INTRODUCTION

### 0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for the Robinson R44 Series embodying the External Attachment Provisions as described herein.

### 0-2 DEFINITIONS AND ABBREVIATIONS

ICA -	Instructions for Continued Airworthiness
LH -	Left Hand
RH -	Right Hand
Close Side-	Side closest to cargo basket or equipment installation
Far side -	Side opposite to cargo basket or equipment installation

### 0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the External Attachment Provisions. Requests for a copy may be made in writing to:

Aero Design Ltd.  
9888A Malaspina Road  
Powell River, BC, Canada  
V8A 0G3  
Email: [info@aerodesign.ca](mailto:info@aerodesign.ca)

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

### 0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

**CAUTION :** This installation is NOT compatible with fixed or pop-out float installations.

### 0-5 GENERAL DESCRIPTION

Quick Release Mounting Provisions are a pair of beams mounted to fittings attached to the cross tube elbows under the helicopter. The Quick Release Mounting Provisions allow the installation of various equipment, such as cargo baskets.

The fittings are aluminum clamps with a mounting point for the beam. The clamp arrangement allows for variability in the cross tube elbows, and allows the cross tube to flex without stiffening due to the beam.

The beams are steel tubing which stick out from the side of the helicopter, and have a vertical tube with keyways in the outboard face to mount various pieces of equipment such as cargo baskets and flight steps. The quick release mechanism is built into the down tube.

## CHAPTER 4 – AIRWORTHINESS LIMITATIONS

### *Transport Canada*

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

### *FAA*

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

### *EASA*

The Airworthiness Limitations section is approved and variations must also be approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Mounting Provisions.



## CHAPTER 5 – INSPECTION REQUIREMENTS

### 5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the Robinson R44 Series Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of the Quick Release Mounting Provisions.

#### *100 Hour or Annual Inspection*

1. Inspection Area: Landing Gear Cross Tube Elbows
  - a) Visually inspect attachment clamp fittings in situ for cracks, corrosion or other damage.
  - b) Visually inspect hardware securing attachment fittings to cross tube elbows in situ for security and damage.
2. Inspection Area: Beams
  - a) Visually inspect beams for cracks, corrosion or other damage.
  - b) Visually inspect bolts attaching beams to external attachment provisions for security and damage.
  - c) Inspect rubber hose at clamp fitting for condition.

#### *Special Inspections*

Following a hard landing inspect the Quick Release Mounting Provisions installation in accordance with the 100 hour or annual inspection listed above.

### 5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Attachment Fittings

DO NOT REPAIR DAMAGE TO FITTINGS IF BEYOND THE LIMITS BELOW.

  - a) Nicks and/or gouges on any surface up to 0.030" deep and 0.125" wide may be dressed out to a smooth contour. Touch up paint as required.
  - b) Cracking on any surface is unacceptable.
  - c) Do not repair elongation of provision bolt hole (AN6 bolt). Hole is nominally 0.386" (W drill) in diameter.
  - d) Touch up with polyurethane paint as required following repairs.
2. Beams

DO NOT REPAIR DAMAGE TO BEAMS IF BEYOND THE LIMITS BELOW.

  - a) Nicks and/or gouges on any face up to 0.015" deep and 0.125" wide may be dressed out to a smooth contour.

- b) Critical keyway dimensions on the aft beam are shown in Figure 5.1. The forward beam does not have a critical dimension. Attempt to insert 15/32 drill shank into bottom end of slots. If drill can be inserted, slot is worn beyond limit.

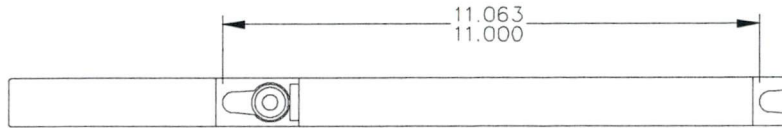


Figure 5.1 – Critical Keyway Dimensions (Aft Beam)

- c) Touch up with polyurethane paint as required following repairs.
- d) Rubber hose on attachment end of beams shall be replaced if it shows signs of cracking, hardening, or other deterioration. Replace with  $\frac{3}{4}$ " ID commercial heater hose, 1" long.

### 5-3 PROTECTIVE TREATMENT INFORMATION

#### 1. Attachment Fittings

The Attachment Fittings are supplied painted black. If the paint is damaged, touch up in accordance with Robinson R44 Maintenance Manual Section 1.460 using "Limited Touch up" Item A.

Alternate: The Attachment Fittings are supplied anodized black. If the anodizing is damaged, paint in accordance Robinson R44 Maintenance Manual Section 1.460 using Item A.

#### 2. Beams

The Beams are supplied powder coated. If the powder coating is damaged, touch up in accordance Robinson R44 Maintenance Manual Section 1.460 using Item D – F as applicable.

## CHAPTER 25 – EQUIPMENT AND FURNISHINGS

## 25-1 QUICK RELEASE MOUNTING PROVISIONS REMOVAL

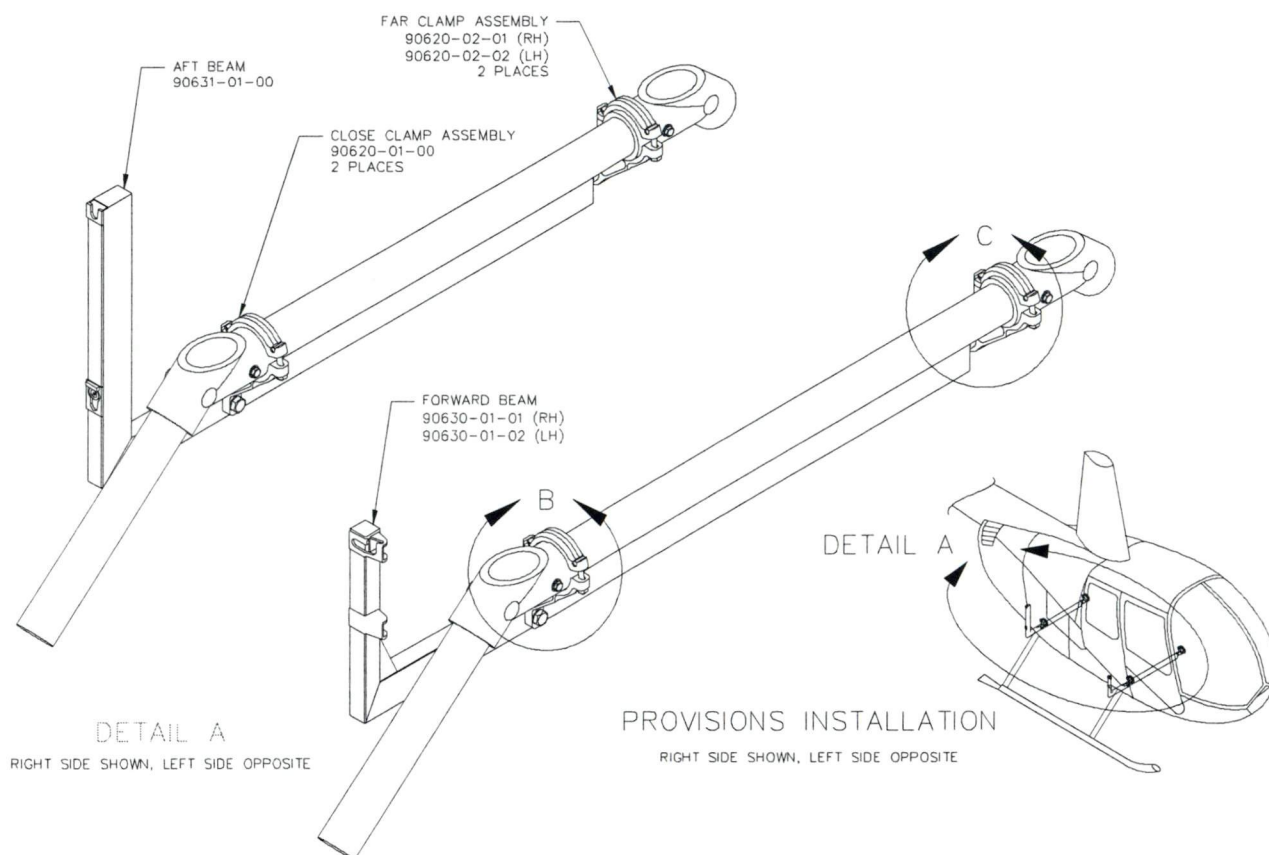


Figure 25.1 – Quick Release Mounting Provisions

1. Remove AN6-21A Bolt, NAS1149F0663P Washers and MS21044N6 Nut attaching Forward Beam (90630-01-01 RH or -02 LH) to Close Clamp Assembly. Remove Forward Beam by pulling out of Far Clamp Assembly. Ensure Rubber Hose remains on Forward Beam.
2. Remove AN6-21A Bolt, NAS1149F0663P Washers and MS21044N6 Nut attaching Aft Beam (90631-01-00) to Close Clamp Assembly. Remove Aft Beam by pulling out of Far Clamp Assembly. Ensure Rubber Hose remains on Aft Beam.
3. Loosen 3D0006-4 Self Aligning Nut on T-Bolt on Clamp Assembly. Clamp Assembly may be moved off elbow to centre section of cross tube for easier access.
4. Remove MS21042L4 Nut, and NAS1149F0463P Washer from AN4 bolt on Clamp Assembly.
5. Remove Clamp Assembly from cross tube.
6. Repeat steps 3 - 5 for remaining Clamp Assemblies.



- Forward Cross Tube Cover (C475-5) and Strut Fairings (C082-XX) may be installed in accordance with the Robinson R44 Maintenance Manual.

## 25-2 QUICK RELEASE MOUNTING PROVISIONS INSTALLATION

Refer to Figure 25.1.

- Remove Strut Fairings (C082-XX) on the side of the helicopter that the equipment (cargo basket, etc.) will be installed on. Refer to R44 Maintenance Manual, Section 5.410.
- Remove Forward Cross Tube Cover (C475-5). Leave Channels (C388-3) in place.
- Remove MS21042L4 Nut and NAS1149F0463P Washer from AN4-12A Bolt on Close Clamp Assembly (90620-01-00). Loosen 3D0006-4 Self-Aligning Nut on FT4F-175H T-Bolt if required. Locate Clamp Assembly on forward cross tube elbow, with beam mounting lug on aft side, approximately 0.25" from inboard edge. Install NAS1149F0463P Washer and MS21042L4 Nut on AN4-12A Bolt. Tighten nuts enough to prevent the clamp from slipping on the elbow. Repeat for aft cross tube. See Figure 25.2.

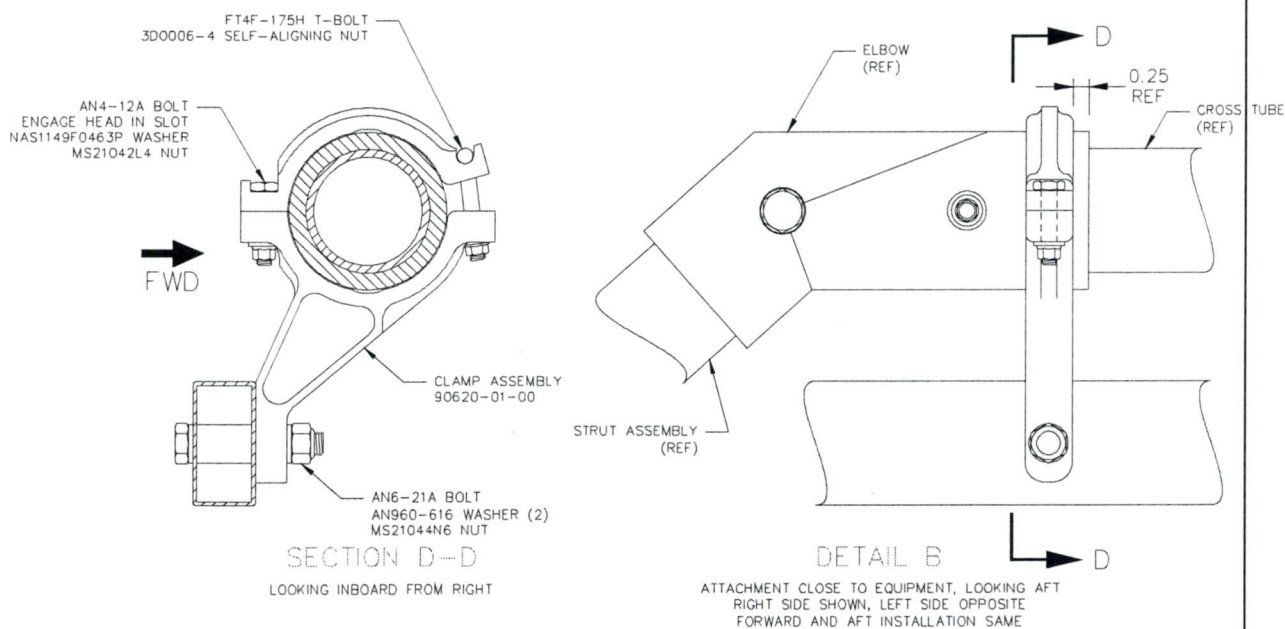


Figure 25.2 – Clamp Assembly Installation (Close Side)

- Remove MS21042L4 Nut and NAS1149F0463P Washer from AN4-12A Bolt on Far Clamp Assembly (90620-02-01 RH or -02 LH). Loosen 3D0006-4 Self-Aligning Nut on FT4F-175H T-Bolt if required. Locate Clamp Assembly on forward cross tube elbow with beam mounting lug on aft side, approximately 0.25" from inboard edge. Install NAS1149F0463P Washer and MS21042L4 Nut on AN4-12A Bolt. Tighten nuts enough to prevent the clamp from slipping on the elbow. Repeat for remaining aft cross tube. See Figure 25.3



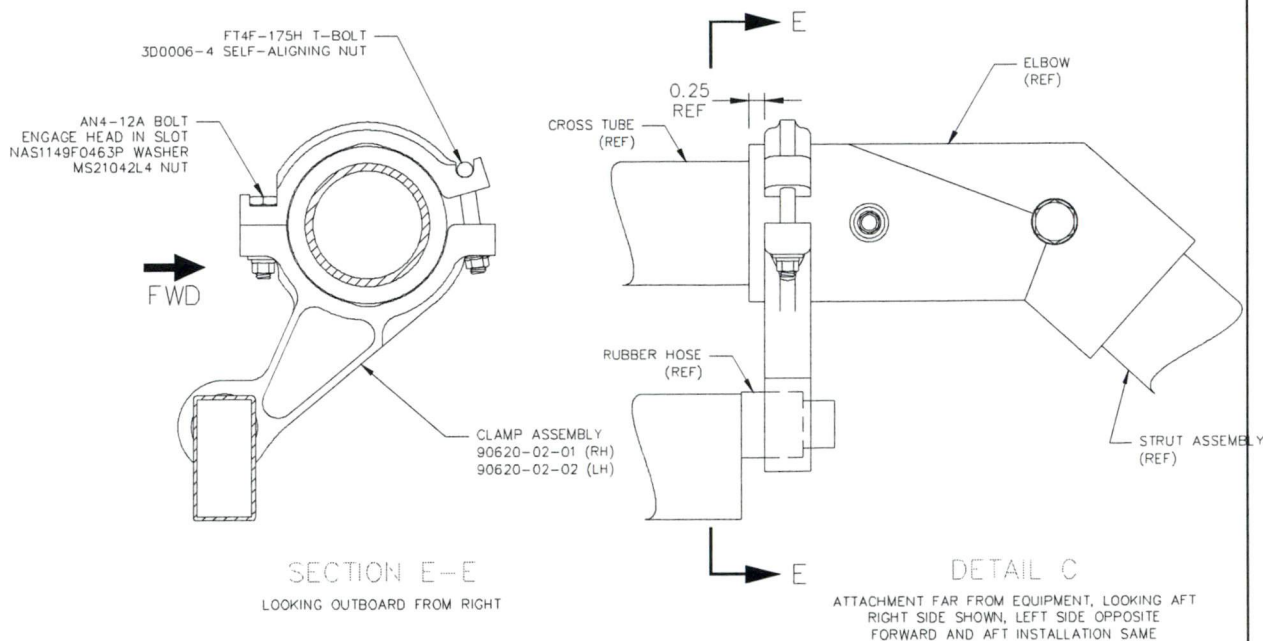


Figure 25.3 – Clamp Assembly Installation (Far Side)

5. Remove Rubber Hose from Forward and Aft Beams and insert into Far Clamp Assemblies.
6. Slide pin on far end of Forward Beam Assembly (90630-01-01 RH, -02 LH) into rubber hose in Far Clamp Assembly on forward cross tube. Rubber hose may be lubricated with soap and water if required. Insert AN6-21A Bolt with NAS1149F0663P Washer through bushing in Forward Beam into hole in Close Clamp Assembly. Shift clamps inboard or outboard as required, maintain approximately equal distance from clamp to edge of elbow. Install NAS1149F0663P Washer and MS21044N6 Nut on bolt. Torque AN6 bolt to 160-190 in-lbs (18.1-21.5 N-m).
7. Slide pin on far end of Aft Beam Assembly (90631-01-00) into rubber hose in Far Clamp Assembly on aft cross tube. Rubber hose may be lubricated with soap and water if required. Insert AN6-21A Bolt with NAS1149F0663P Washer through bushing in Aft Beam into hole in Close Clamp Assembly. Install NAS1149F0663P Washer and MS21044N6 Nut on bolt. Torque AN6 bolt to 160-190 in-lbs (18.1-21.5 N-m).
8. Adjust beams as to be parallel to cross tubes with a 1" gap between the beam and cross tube. Rotate the far clamp only to adjust for parallel, then rotate both clamps together to attain 1" gap. Loosen clamps as required, re-tighten after.
9. Torque bolts on Clamp Assemblies to 50-70 in-lbs (5.6-7.9 N-m).

## 25-3 BILL OF MATERIALS

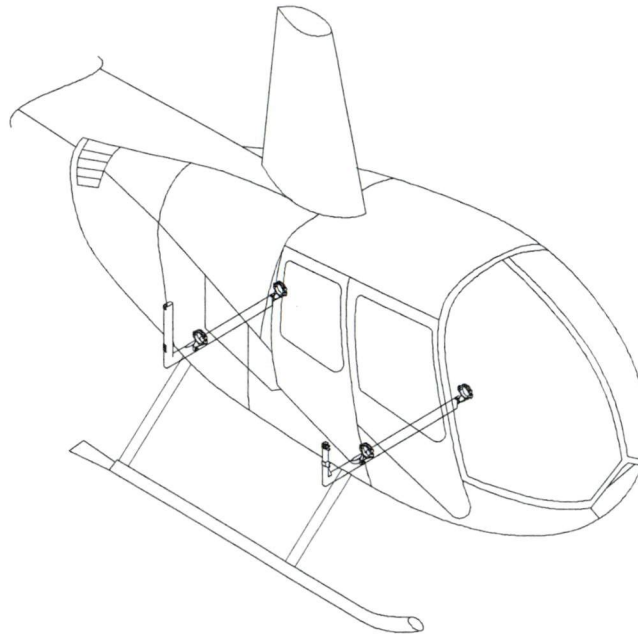


Figure 25.4 – Attachment Provisions Installation

Qty.	Part Number	Description
1	90602-01-01	Attachment Provisions Installation – RH
1	90602-01-02	Attachment Provisions Installation – LH
. 2	90620-01-00	Clamp Assembly (Close)
. 2	90620-02-01	Clamp Assembly (Far, RH)
. 2	90620-02-02	Clamp Assembly (Far, LH)
. 1	90630-01-01	Forward Beam Assembly (RH)
. 1	90630-01-02	Forward Beam Assembly (LH)
. 1	90631-01-00	Aft Beam Assembly
. 2	AN6-21A	Bolt
. 2	NAS1149F0663P	Washer
. 2	MS21044N6	Nut

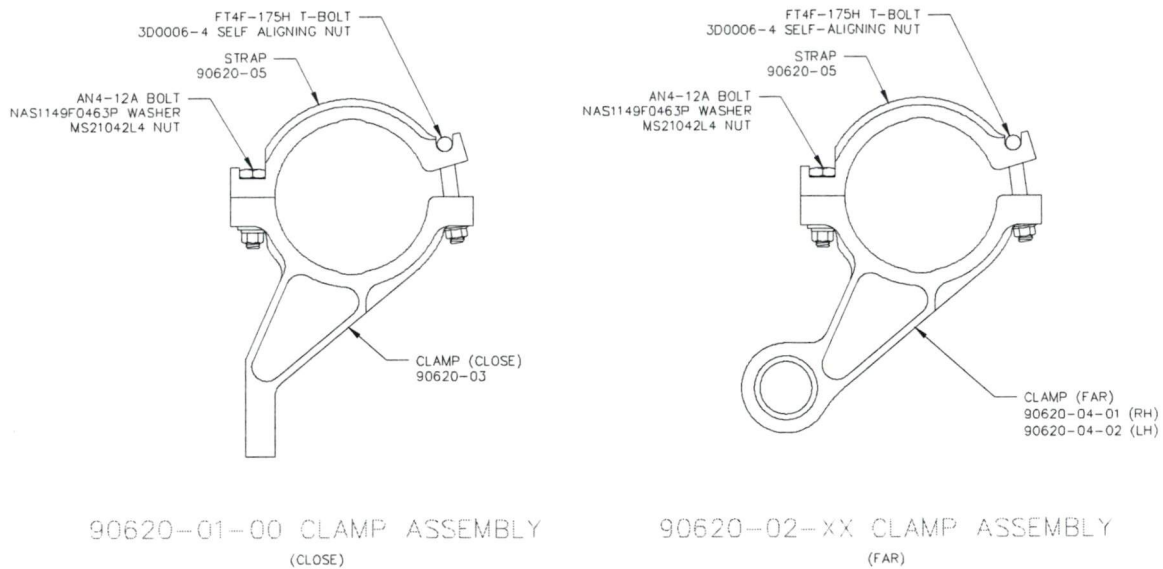


Figure 25.5 – Clamp Assemblies

Qty.	Part Number	Description
<b>2</b>	<b>90620-01-00</b>	<b>Clamp Assembly (Close)</b>
. 1	90620-03	Clamp (Close)
. 1	90620-05	Strap
. 1	AN4-12A	Bolt
. 1	NAS1149F0463P	Washer
. 1	MS21042L4	Nut
. 1	FT4F-175H	T-Bolt
. 1	3D0006-4	Self-Aligning Nut
<b>2</b>	<b>90620-02-01</b>	<b>Clamp Assembly (Far, RH)</b>
. 1	90620-04-01	Clamp (Far, RH)
. 1	90620-05	Strap
. 1	AN4-12A	Bolt
. 1	NAS1149F0463P	Washer
. 1	MS21042L4	Nut
. 1	FT4F-175H	T-Bolt
. 1	3D0006-4	Self-Aligning Nut
<b>2</b>	<b>90620-02-02</b>	<b>Clamp Assembly (Far, LH)</b>
. 1	90620-04-02	Clamp (Far, LH)
. 1	90620-05	Strap
. 1	AN4-12A	Bolt
. 1	NAS1149F0463P	Washer
. 1	MS21042L4	Nut
. 1	FT4F-175H	T-Bolt
. 1	3D0006-4	Self-Aligning Nut

## 25-4 WEIGHT AND BALANCE

Removal of beams leaving clamps in place is an approved configuration for flight. Two weight and balance configurations are required: Clamps only; and Beams and Clamps.

Standard		Weight (lbs)	Longitudinal		Lateral	
P/N	Description		Arm (in)	Moment (in-lbs)	Arm (in)	Moment (in-lbs)
RH Provisions Installation						
90620-XX-XX	Clamp Assemblies	1.6	99.7	159.5	-0.7	-1.0
90630-01-01	Forward Beam Assembly	5.0	74.2	371.0	8.3	41.5
90631-01-00	Aft Beam Assembly	5.0	128.8	644.0	8.7	43.5
90602-01-01	RH Provisions Installation (Total)	11.6	101.3	1174.5	7.2	84.0
LH Provisions Installation						
90620-XX-XX	Clamp Assemblies	1.6	99.7	159.5	0.7	1.0
90630-01-02	Forward Beam Assembly	5.0	74.2	371.0	-8.3	-41.5
90631-01-00	Aft Beam Assembly	5.0	128.8	644.0	-8.7	-43.5
90602-01-02	LH Provisions Installation (Total)	11.6	101.3	1174.5	-7.2	-84.0

Metric		Weight (kg)	Longitudinal		Lateral	
P/N	Description		Arm (mm)	Moment (mm-kg)	Arm (mm)	Moment (mm-kg)
RH Provisions Installation						
90620-XX-XX	Clamp Assemblies	0.7	2532	1833	-17	-12
90630-01-01	Forward Beam Assembly	2.3	1885	4264	211	477
90631-01-00	Aft Beam Assembly	2.3	3226	7298	221	500
90602-01-01	RH Provisions Installation (Total)	5.3	2552	13396	184	965
LH Provisions Installation						
90620-XX-XX	Clamp Assemblies	0.7	2532	1833	17	12
90630-01-02	Forward Beam Assembly	2.3	1885	4264	-211	-477
90631-01-00	Aft Beam Assembly	2.3	3226	7298	-221	-500
90602-01-02	LH Provisions Installation (Total)	5.3	2552	13396	-184	-965

## 25-5 STRUCTURAL FASTENER DATA

Refer to Robinson R44 Maintenance Manual, section 1.300 for torque values not listed in this ICA.



# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

## APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

### BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Cargo Basket Installation on Robinson R44, R44 II
Certification Basis of design change and revision date:	FAR 27, Amendment 27-24
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 906.92, Rev. 2) ✓
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 90601, Rev. 1

### BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.2 (a) Manual(s)</b> (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Single Manual (ICA906.92, Rev. 2)
<b>A527.2 (b) Practical arrangement</b> (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Arranged in ATA format
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (a) Rotorcraft maintenance manual or section</b>		
<b>A527.3 (a) (1) (Introduction)</b> (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.000	Supplemental ICA ref: Section 0-1
<b>A527.3 (a) (2) (Description)</b> (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.007	Supplemental ICA ref: Section 0-5

### MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (a) (3) Control &amp; Operation</b> (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (a) (4) Servicing</b> (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.100	Supplemental ICA ref: N/A
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (b) Maintenance Instructions.</b>		
<b>A527.3 (b) (1) Scheduling</b> 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.101	Supplemental ICA ref: Section 5-1
<b>A527.3 (b) (2) Troubleshooting</b> (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A



**MSI 53 – Review of Supplemental Instructions for Continued Airworthiness**

<b>Regulatory Standard Reference Column 1</b>	<b>Design Approval Holder (DAH) ICA Reference Column 2</b>	<b>Applicant Means of Compliance Supplemental ICA Requirements Column 3</b>
<b>A527.3 (b) (3) Removal/replacement</b> (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 4	Supplemental ICA ref: Section 25-1 thru 25-6
<b>A527.3 (b) (4) General</b> (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.200	Supplemental ICA ref: Section 25-7
<b>A527.3 (c) Access</b> (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (d) Special inspections</b> (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-1
<b>A527.3 (e) Protective treatment</b> (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-3
<b>A527.3 (f) Fasteners, torque values, etc</b> (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.300	Supplemental ICA ref: Section 25-8
<b>A527.3 (g) Special tools</b> (g) A list of special tools needed.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 16	Supplemental ICA ref: N/A

## MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

### BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

<b>A527.4 AWL - Separate Section 1</b> The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, single page before Section 1	Supplemental ICA ref: Chapter 4  <div style="text-align: right; margin-top: 20px;"> <i>EASA/FAA also.</i> </div>
---	---	--

### BLOCK 4 – Applicant Statement of Compliance

<b>The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.</b>	
Applicants Signature: <u></u>	Date: <u>02 June 2014</u>
Applicants Name: <u>Jeff Clarke, Vice President</u>	

### BLOCK 5 – Minister's Statement of Acceptability

<b>The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.</b>			
Reviewer's Name: <u>JACK STAAL</u>	Phone # <u>780-495-5227</u>	Email: <u>jack.staal@tc.gc.ca</u>	Mail Routing Symbol: <u>RAX1</u>
Signature: <u></u>	Date: <u>13 JUNE 2014</u>	NAPA Number: <u>C-14-0519.</u>	



## **INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 906.92**

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### **QUICK RELEASE CARGO BASKET**

### **ROBINSON R44, R44 II**

#### **Preface**

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Cargo Basket is installed in accordance with Aero Design Ltd. Document Control List DCL906-2, Revision 1.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 2  
Date: 27 May 2014

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Aero Design Ltd.



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**RECORD OF REVISIONS**

Revision Number	Issue Date	Date Inserted	By
0	22 September 2010		Original Issue
1	20 June 2011		
2	27 May 2014		

**LIST OF EFFECTIVE PAGES**

List of Revisions	Revision 0 (Original Issue)	22 September, 2010
	Revision 1	20 June 2011
	Revision 2	27 May 2014

## List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	2
Revision Record/List of Effective Pages	2	2
Table of Contents	3	2
00-00-00	4	2
	5	1
04-00-00	6	2
05-00-00	7	2
	8	1
	9	2
11-00-00	10	2
25-50-00	11	1
	12-15	2

**NOTE**

Revised text is indicated by a black vertical line. A revised page with only a vertical line next to the page number indicates that text has shifted or that non-technical correction(s) were made on that page. Insert latest revision pages; dispose of superseded pages.

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## CHAPTER 0 – INTRODUCTION

### 0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Cargo Basket as described herein.

### 0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness  
LH - Left Hand  
RH - Right Hand

### 0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Cargo Basket. Requests for a copy may be made in writing to:

Aero Design Ltd.  
9888A Malaspina Road  
Powell River, BC, Canada  
V8A 0G3  
Email: [info@aerodesign.ca](mailto:info@aerodesign.ca)

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

### 0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

**CAUTION:** This installation is NOT compatible with fixed or pop-out float installations.



## 0-5 GENERAL DESCRIPTION

The cargo basket installation is a mesh basket installed to the side of the helicopter on beams attached to fittings mounted on the cross tube elbows. The quick release mechanism allows for the installation and removal of the basket quickly without tools, leaving the mounting beams in place.

The basket itself is made of a steel welded tubing structure, and lined with expanded steel mesh. The basket has a hinged lid with a self-locking handle.

The beams consist of a steel tube bolted to fittings attached to the forward and aft cross tube elbows. The quick release mechanism is built into the steel tube.

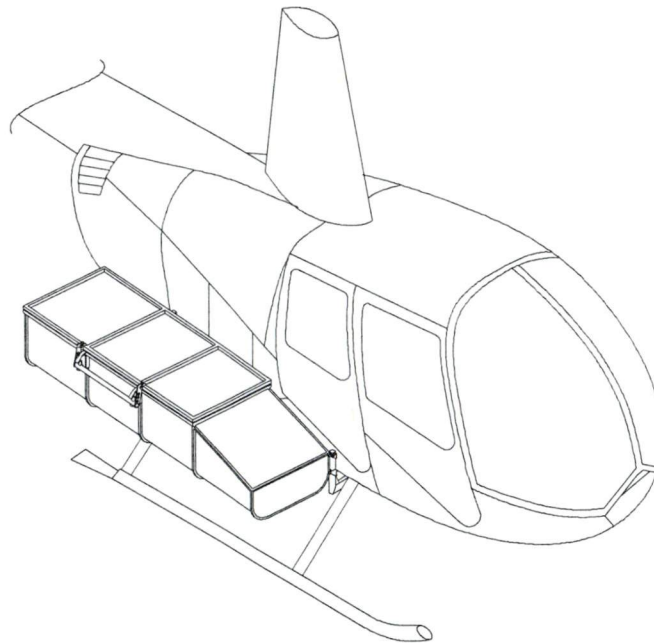


Figure 0.1 – Robinson R44 Cargo Basket Installation

## CHAPTER 4 - AIRWORTHINESS LIMITATIONS

### *Transport Canada*

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

### *FAA*

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

### *EASA*

The Airworthiness Limitations section is approved and variations must also be approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Cargo Basket.

## CHAPTER 5 – INSPECTION REQUIREMENTS

### 5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Cargo Basket.

#### *Daily Inspection*

1. Inspection Area: Basket
  - a) Inspect the basket attachment to the beams for condition and security. Ensure quick release stop pin is completely extended, flush with the outboard surface of the beam. If pin does not completely extend, or spring tension is not sufficient to retain basket, replace spring, refer to section 25-4.
  - b) Inspect latching of the lid for correct operation. Replace handle brackets on basket if handle is not retained in latched position. Refer to section 25-3.

#### *100 Hour or Annual Inspection*

1. Inspection Area: Basket
  - a) Visually inspect tube-to-tube welds and mesh-to-tube welds for cracks, corrosion or other damage.
  - b) Visually inspect basket mesh for damage.
  - c) Visually inspect lid prop for condition and operation. Ensure prop does not extend beyond catch and catch extends to hold lid open. Refer to section 25-11 for lid prop replacement.

#### *Special Inspections*

Following a hard landing inspect the Quick Release Cargo Basket installation in accordance with the 100 hour or annual inspection listed above.

### 5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

#### 1. Basket and Lid Tubing

##### *Damage Limits:*

- a) Deformation of any tubing between welded joints not exceeding 0.25 inches in any direction must be repaired in accordance with the instructions below.
- b) Corrosion not exceeding 0.015 inches deep to be buffed out to a smooth contour.
- c) Corrosion exceeding 0.015 inches deep to be repaired in accordance with the instructions below.

*Repair Instructions:*

- a) Repair Basket and Lid tubing in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, paragraphs 4-80, 4-81 and 4-83 as required.

Basket and Lid are fabricated from the following materials:

Attachment Hoops: 1" square steel tube and/or 1/2" square steel tube  
 Lid and Rim: 3/4" square steel tube  
 Frames: 1/2" square steel tube

- b) Touch up with polyurethane paint as required following repairs.

## 2. Basket and Lid Mesh

*Damage Limits:*

- a) The basket mesh may be deformed or stretched without limit, so long as the welds attaching the mesh to the basket or lid are not compromised. If welds are compromised, repair in accordance with instructions below.
- b) Tears in the mesh not exceeding 4 cells in any direction may be repaired by patching. Maximum one repair patch per bay. See instructions below.

*Repair Instructions:*

- a) Repair mesh to tube welds in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, as required.

Mesh: 3/4" 16 ga. (0.040") expanded steel mesh

- b) Patch repair:

- a. Cut two aluminum sheets, minimum 0.040 inches thick, extending to at least 1 complete cell outside of torn area. Drill #9 holes in the corners of the sheet, located to clear the mesh when installed.
- b. Attach patches, one inside and one outside, to the mesh with AN3 Bolts, AN970-3 Washers, and MS21044N3 Nuts.

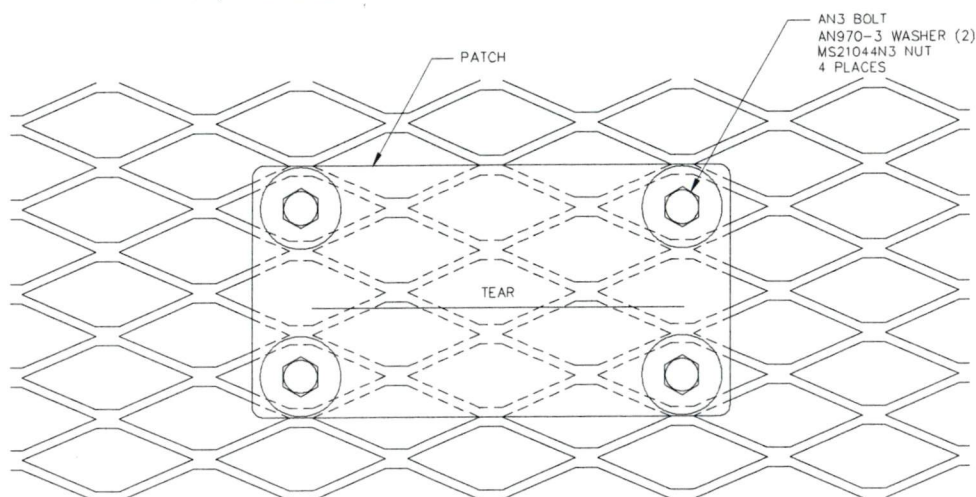


Figure 5.1 – Patch Repair

- c) Touch up with polyurethane paint as required following repairs.



### 5-3 PROTECTIVE TREATMENT INFORMATION

#### 1. Cargo Basket

The cargo basket is supplied powder coated. If the powder coat is damaged, touch up in accordance Robinson R44 Maintenance Manual Section 1.460 using Item D – F as applicable.

**CHAPTER 11 – MARKINGS AND PLACARDS**

The following markings and placards are used with the Quick Release Cargo Basket  
Installation in the locations noted:

a) Located on basket lid:

i) S/N 90601-01 thru S/N 90601-17 (RH) and 90602-01 thru 90602-19 (LH)



RIGHT HAND BASKET



LEFT HAND BASKET

ii) S/N 90601-18 and sub. (RH) and 90602-20 and sub. (LH)



RIGHT HAND BASKET



LEFT HAND BASKET

**CHAPTER 25 – EQUIPMENT AND FURNISHINGS****SECTION 50 – CARGO COMPARTMENTS****25-1 BASKET REMOVAL**

1. Pull knob at bottom end of aft beam and lift basket until attachment fittings are free of keyways. Rest aft end of basket on ground.
2. Slide basket forward and lift attachment fitting out of keyway in forward beam.

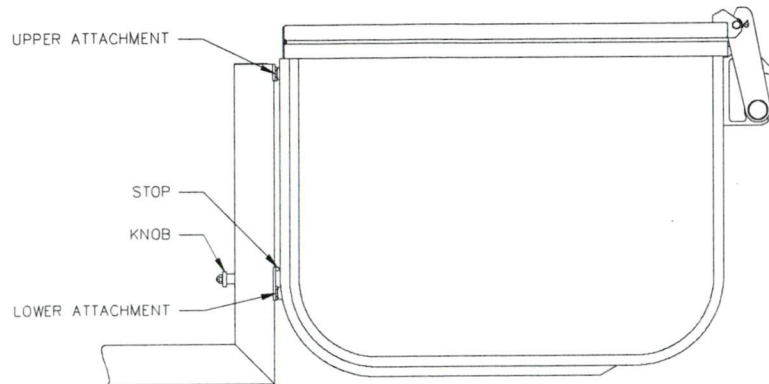


Figure 25.1 – Aft Attachment Features

**25-2 BASKET INSTALLATION**

Installation of the Quick Release Mounting Provisions is required prior to installing the Quick Release Cargo Basket. Refer to ICA906.91.

1. At forward end of basket, set upper attachment fitting into keyway in forward beam. Allow basket to hang from fitting, rest aft end on ground.

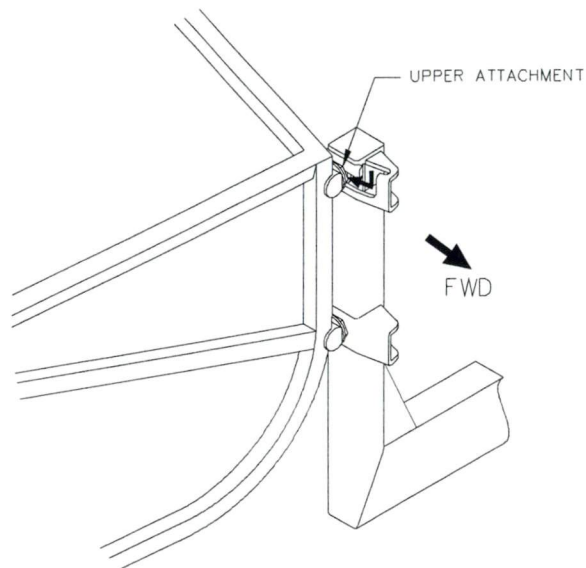


Figure 25.2 – Forward Basket Attachment Features

2. Raise aft end of basket to aft beam, sliding basket aft, and lift until lower attachment fitting hits stop over keyway.
3. Push fitting into lower keyway, ensure top fitting enters top keyway, and slide basket down until locked. Pull up on aft end basket to ensure basket is locked in place on aft beam.
4. Ensure spring-loaded pin securing lower aft basket attachment is extended flush with outboard surface of beam.

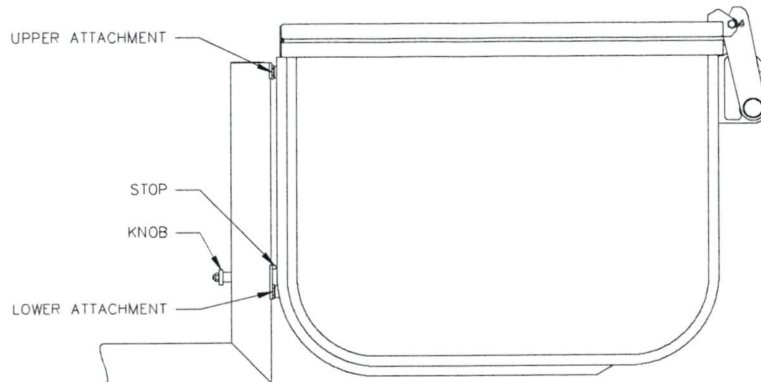


Figure 25.3 – Aft Basket Attachment Features

### 25-3 HANDLE BRACKET REPLACEMENT

Refer to Figure 25.4.

1. Remove two (2) AN3-11A Bolts, NAS1149F0363P Washers and MS21044N3 Nuts from each Handle Bracket (84267-01). Remove handle brackets from basket hoops.
2. Slide two (2) replacement Handle Brackets (84267-01) onto basket hoops. Align Handle Bracket to bushings in hoop. Insert two (2) AN3-11A Bolts with NAS1149F0363P Washers through Handle Bracket and bushing. Install NAS1149F0363P Washer and MS21044N3 Nut on each bolt. Torque nuts to 20-25 in-lbs (2.3-2.8 N-m).

### 25-4 HANDLE SPRING REPLACEMENT

Refer to Figure 25.4.

1. Remove two (2) AN3-12A Bolts, NAS1149F0363P Washers (2) and MS21044N3 Nuts attaching handle to lid. Remove handle from basket. Remove springs from handle.
2. Slide replacement 36278-01R and 36278-01L Springs onto handle. Spring arm will catch on hook when on the correct side. Insert two 36275-01 bushings into handle attachments. Locate handle on basket, and insert two (2) AN3-12A Bolts with NAS1149F0363P Washers through bracket on lid and bushing in handle. Install NAS1149F0363P Washer and MS21044N3 Nut on each bolt. Torque nuts to 20-25 in-lbs (2.3-2.8 N-m). Lift spring arm over catch on handle and bar on lid bracket.



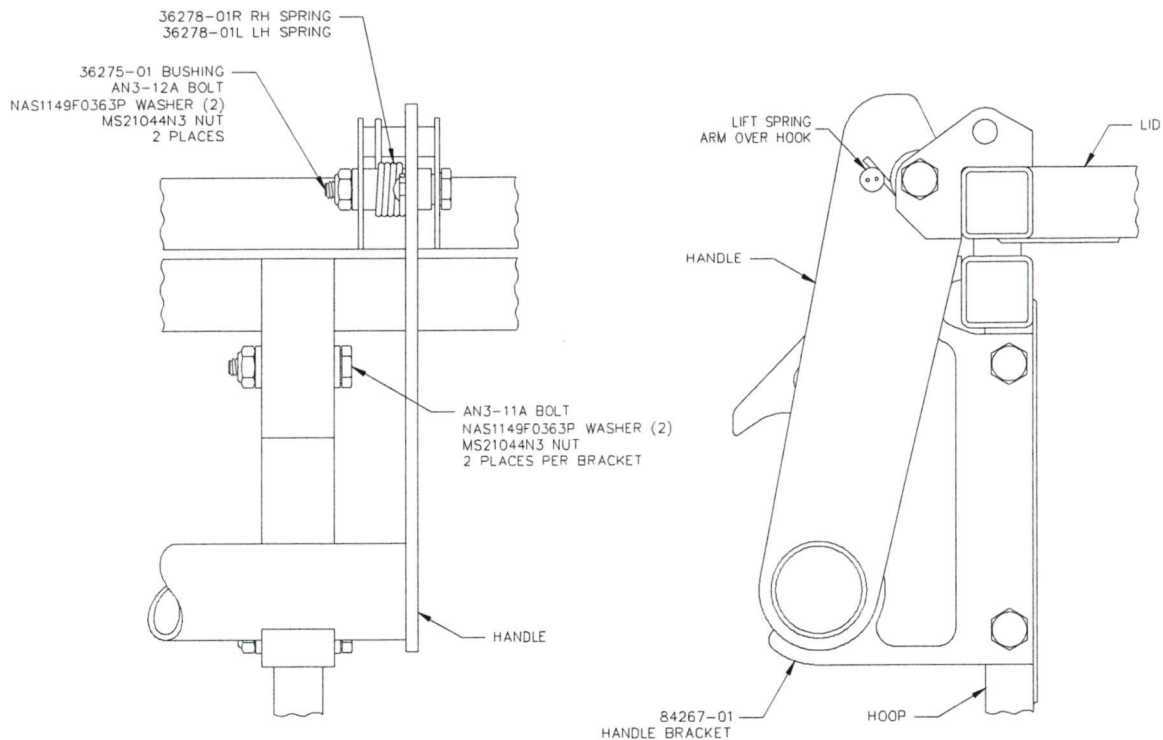


Figure 25.4 – Handle Bracket Parts

## 25-5 LID PROP REPLACEMENT

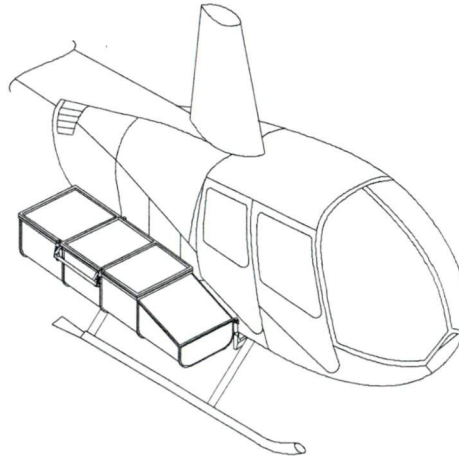
1. Remove AN3-15A and AN3-17A Bolts, NAS1149F0363P Washers (3), AN970-3 Washers (2) and MS21044N3 Nuts attaching lid prop to basket assembly. Remove lid prop from basket
2. Locate replacement 36280-01 Lid Prop on bushings at forward end of basket and lid.
3. Insert AN970-3 Washer into lid end of prop, and slide AN3-15A Bolt with NAS1149F0363P Washer through bushing in lid. Install NAS1149F0363P Washer and MS21044N3 Nut on bolt.
4. Slide AN3-17A Bolt with AN970-3 Washer through bushing in basket. Install NAS1149F0363P Washer and MS21044N3 Nut on bolt.
5. Ensure lid prop is seated on bushings and torque nuts to 20-25 in-lbs (2.3-2.8 N-m).

## 25-6 QUICK RELEASE PIN SPRING REPLACEMENT

1. Remove basket from mounting beams, refer to section 25-1.
2. At lower attachment keyway on aft beam, remove MS21044C3 Nut from #10-32 stainless steel countersunk screw and remove 69830-13 Knob, 69830-12 Stop, and 69830-23 Spring. Discard defective Spring.
3. Place 69830-12 Stop on #10-32 stainless steel countersunk screw. Slide replacement 69830-23 Spring onto Stop. Insert screw/Stop/Spring into guide in

lower keyway of aft beam. Install 69830-13 Knob and MS21044C3 Nut on inboard side of beam. Torque nut to 20-25 in-lbs (2.3-2.8 N-m).

## 25-7 WEIGHT AND BALANCE



Quick Release Cargo Basket: Configuration 90601-01

Standard P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
90610-01-XX	Basket	41.8	112.4	4698.3	34.4	1437.9
90602-01-XX	Quick Release Mounting Provisions	11.6	101.3	1174.5	7.2	84.0
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>53.4</b>	<b>110.0</b>	<b>5872.8</b>	<b>28.5</b>	<b>1521.9</b>
Maximum Cargo (centred in basket)		175.0	112.4	19670.0	34.4	6020.0

Metric P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
90610-01-XX	Basket	18.9	2855	53999	874	16526
90602-01-XX	Quick Release Mounting Provisions	5.3	2552	13396	184	965
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>24.2</b>	<b>2789</b>	<b>67394</b>	<b>724</b>	<b>17491</b>
Maximum Cargo (centred in basket)		80.0	2855	228397	874	69901

Note: -XX indicates side. -01 is RH, -02 is LH. Lateral arm is negative on LH side.

**OPTIONS**

The following weight and balance is for optional configurations of the basket

Standard		Weight	Longitudinal		Lateral	
P/N	Description	lb	arm in	moment in-lb	arm in	moment in-lb
70408-01	Hangar Wheel	0.8	149.0	119.2	31.1	24.9

Metric		Weight	Longitudinal		Lateral	
P/N	Description	kg	arm mm	moment mm-kg	arm mm	moment mm-kg
70408-01	Hangar Wheel	0.4	3785	1370	790	286

**25-8 STRUCTURAL FASTENER DATA**

Refer to Robinson R44 Maintenance Manual, section 1.300 for torque values not listed in this ICA.





Transport Canada / Transports Canada

DESIGN CHANGE APPROVAL APPLICATION

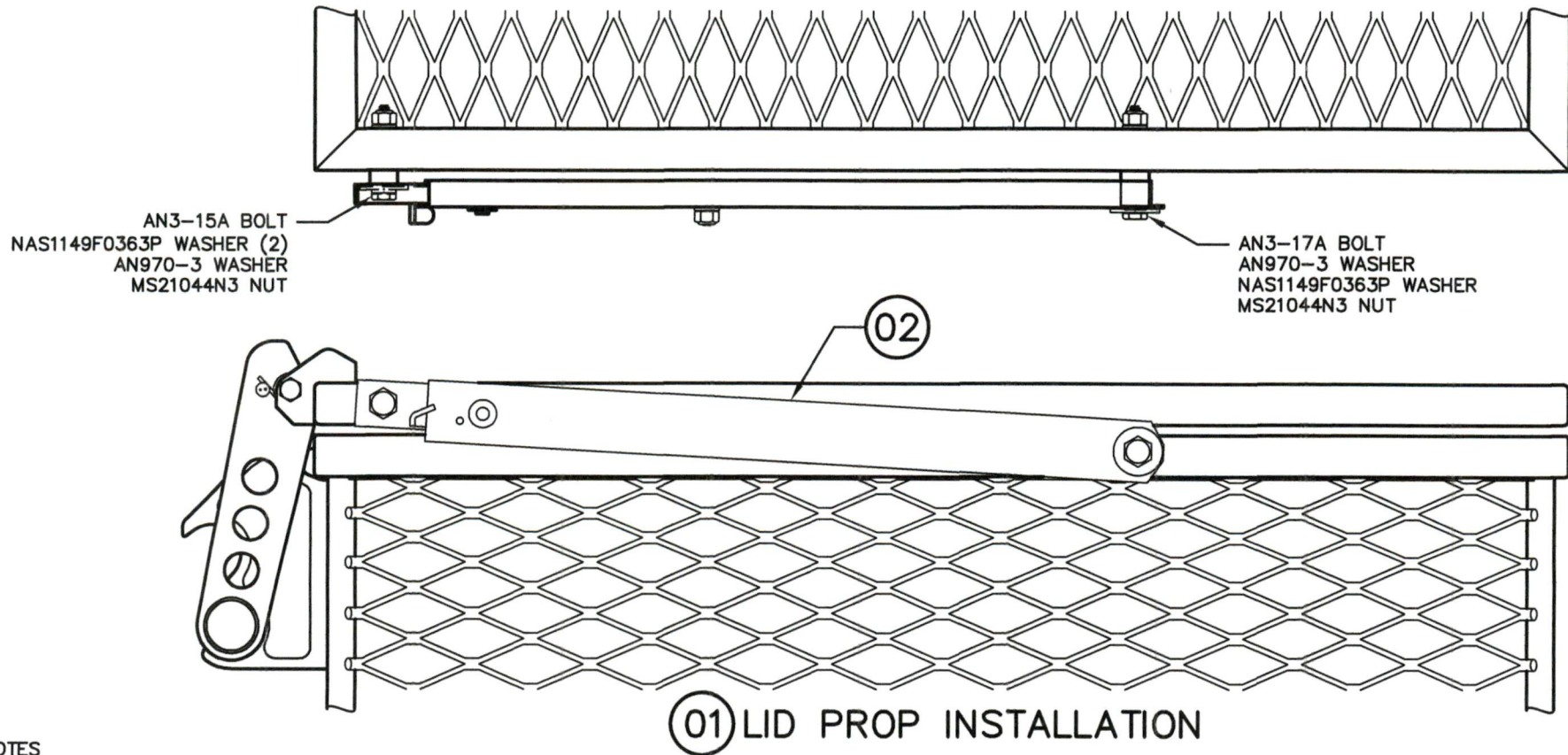
DEMANDE D'APPROBATION D'UNE MODIFICATION DE LA CONCEPTION

Legal name and address of applicant Nom et adresse légale du demandeur		Legal name and address of prospective holder Nom et adresse légale du titulaire éventuel		Name and address for billing purposes (if different than applicant) Nom et adresse aux fins de facturation (si différent du demandeur)	
Aero Design Ltd. 9888A Malaspina Road Powell River, BC, Canada V8A 0G3		Aero Design Ltd. 9888A Malaspina Road Powell River, BC, Canada V8A 0G3			
Identification of aeronautical product / Identification du produit aéronautique					
Make / Marque Robinson		Model / Modèle R44, R44 II	Registration / Immatriculation All eligible	Serial No. / N° de série All eligible	Part No. / N° de la pièce
Request for (check appropriate box) / Objet de la demande (Cochez les carrés selon le cas)				Type Design Examination by Foreign Authority Examen de la définition de type par autorité étrangère	
<input type="checkbox"/> STC CTS				<input type="checkbox"/> Repair Design Approval (RDA) Approbation de la conception de réparation (ACR)	
<input type="checkbox"/> STC (single serial number) CTS (numéro de série simple)				<input type="checkbox"/> Repair Design Approval - Process Repair ACR - Processus de réparation	
<input type="checkbox"/> STC (multiple serial numbers) CTS (numéros de série multiples)				<input type="checkbox"/> Part Design Approval (PDA) Approbation de la conception de pièce (ACP)	
<input type="checkbox"/> Type Certificate Revision Révision de certificat de type				<input type="checkbox"/> Application to a foreign authority is requested La demande à une autorité étrangère est demandée.	
<input checked="" type="checkbox"/> Revision Révision No. SH10-48				<input type="checkbox"/> Type design examination of foreign change Examen de la définition de type modification étrangère	
				Identify Identifier	
<input type="checkbox"/> Restricted Category Catégorie restreinte Type of Operation Type d'opération					
Title and brief description of modification, repair or replacement part, including effects of changes (use additional pages if necessary). Refer to CAR 521.155(b)(i) for details. Titre et brève description de la modification, de la réparation ou de la pièce de rechange, y compris les effets des changements (utiliser des feuilles supplémentaires si nécessaire). Référez-vous à RAC 521.155(b)(i) pour des détails.					
External Cargo Basket Installation Installation of cargo basket and mounting provisions on the helicopter.					
Applicable Type Certificate (TC) / Certificat de type (CT) pertinent					
TC No. / N° de CT H-97		Issue No. / N° de l'édition 7		Identify State of Design / Identifier l'état de conception USA	
The applicant is responsible for the control of product manufacture / Le demandeur est responsable du contrôle de la fabrication du produit					
<input checked="" type="checkbox"/> Yes Oui <input type="checkbox"/> No Non If no, identify who is responsible Si non, identifier qui est responsable					
Documentation to be submitted Documentation à soumettre					Applicant Demandeur
					Submitted Soumis
					Yes Oui
					No Non
Proposed certification basis Proposition de base de certification					✓
Certification plan in accordance with CAR 521.155(d) Plan de certification selon RAC 521.155(d)					✓
Applicant's remarks / Remarques du demandeur Re-issue is to update holder information.					
I hereby certify that the information contained herein is correct and complete. I agree to pay charges as prescribed in Part 1, Subpart 4 of the CARs (CAR 104-Charges). Je certifie que les renseignements figurant ci-dessus sont exacts et complets. Je m'engage à payer les redevances prescrites à la sous-partie 4 de la partie I du RAC (sous-partie 104 du RAC - Redevances).					
Signature of Applicant / Nom et signature du demandeur		VILE-PRESIDENT		2014-05-29	
		Title / Poste		Date (yyyy-mm-dd) / Date (aaaa-mm-jj)	




THIS DRAWING CONTAINS INFORMATION AND DATA WHICH IS PROPRIETARY TO AERO DESIGN LTD. THIS DRAWING, OR ANY PORTION THEREOF, MAY NOT BE REPRODUCED, COPIED, OR DUPLICATED IN ANY MANNER, NOR USED FOR MANUFACTURING WITHOUT THE WRITTEN CONSENT OF AERO DESIGN LTD. BY ACCEPTING THIS DRAWING FOR REFERENCE, THE RECIPIENT AGREES TO HOLD AERO DESIGN LTD. HARMLESS FROM THE USE, OR MISUSE, OF THIS DRAWING OR THE INFORMATION CONTAINED THEREON.

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE	*	*



#### NOTES

- THIS DRAWING APPLIES TO ALL AERO DESIGN LTD. CARGO BASKET ASSEMBLIES.  
LID PROP IS TO BE INSTALLED ON THE FORWARD END OF THE BASKET AS INSTALLED ON THE HELICOPTER.

2	MS21044N3		NUT	APPROVALS	DATE	 <div><b>AERO DESIGN LTD.</b> 9888A MALASPINA ROAD POWELL RIVER, BC, CANADA, V8A 0G3 TEL: 604.488.2376      www.aerodesign.ca</div>								
3	NAS1149F0363P		WASHER	DRAWN: JEFF CLARKE	21 MAY 2014									
2	AN970-3		WASHER	CHECKED: JASON REKVE	21 MAY 2014									
1	AN3-17A		BOLT											
1	AN3-15A		BOLT	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS                      ANGLES X.XXX    ±0.010                      ±1/2" X.XX     ±0.03 X.X      ±0.1		<div>HELICOPTER CARGO BASKET ALL MODELS LID PROP INSTALLATION</div> <table><tr><td>NOT TO SCALE</td><td>DWG. SIZE</td><td>DWG. NO.</td><td>REV.</td></tr><tr><td>SHEET 1 OF 1</td><td>A4</td><td>84240</td><td>0</td></tr></table>	NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.	SHEET 1 OF 1	A4	84240	0
NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.											
SHEET 1 OF 1	A4	84240	0											
1	36280-01	02	LID BRACE ASSEMBLY											
	84240-01	01	LID BRACE INSTALLATION											
01	PART NO.	ITEM	DESCRIPTION											
QTY.	LIST OF MATERIALS													

**Steven Fahey**

*Responded 21 JUL 2014*

**From:** "Janne Pallonen" <janne@rotorway.fi>  
**To:** <steve@aerodesign.ca>  
**Sent:** Saturday, October 01, 2011 4:49 AM  
**Attach:** EASA approval costs.pdf  
**Subject:** Re: FW: R44 ski basket?

Hello Steve and thank you for the interesting phone conversation a week ago! I am using now the Rotorway Ltd (ahelicopter operator) contacts because started their maintenance manager recently!

I wonder if you have made any decisions to go for EASA STC validation based on your STC?

Some guide lines on EASA's charging may give the table and explonation from EASA (attached) which states STC charges for small rotorcraft STC's as well.

When you have the existing design data with Canadian and FAA approavals it shall be included to EASA Form 33 (STC application) and according bilateral agreement should be accepted as is (said validation in EASA).

This EASA acceptance process shall only take weeks when foreign FAA/Canadian STC exists. For completely new STC's the process time is 2-3 months (which your skibasket STC isn't).

As I mentioned at the phone Aerodesign could have all european area R44 markets with this ski basket STC because there is not any in europe. The area includes central european Alp countires like Austria, Switzerland, France and Italy, and northern european skiing countries like Finland, Sweden and Norway. If you wish to go selling the product in Russia some day the EASA STC will help you way there because they relay a lot in EASA's standards and approval at these days.

Well, I hope this may help in your decision making and hope of course it would lead for your application to EASA. Our need for basket is now around February 2012 but we would be grateful for information on your desicion to go or not because we have to begin the preparations for northern operations at the late autumn now?

If you decide to go for application we will make our best to support your application processing in EASA.

Best regards, Janne  
 Rotorway  
 tel +358405022289

2011/10/1 Pallonen Janne <janne.pallonen@finnair.com>

---

**From:** Steven Fahey [mailto:steve@aerodesign.ca]  
**Sent:** 12. toukokuuta 2011 0:51  
**To:** Pallonen Janne  
**Subject:** Re: R44 ski basket?

Janne,

First I must apologize if I haven't responded already. I was examining old e-mail that had come in through the "general inquiries" account, not my usual account, and found your message. There is no sign that I replied at the time, so please forgive me!



Our R44 basket is approved only in Canada, right now. The FAA is beginning to review our application, and they will take a few more months to complete it.

We do not have much experience with the EASA, but the word is that the process is very slow and costly. I am aware of an agreement between the FAA and EASA for mutual acceptance of STC's. Whether that applies to foreign-owned STC's is another matter.

The price of the basket is 9250 dollars, Canadian. Do you use Euro's?

I have attached a brochure with more information about the R44 basket.  
If you are still interested, we will need to consider the certification process with EASA.

Steven Fahey  
[steve@aerodesign.ca](mailto:steve@aerodesign.ca)  
Aero Design Ltd.  
2013 - 39th Avenue NE  
Calgary, Alberta, Canada  
T2E 6R7  
tel: (403) 250-8027  
fax: (403) 250-8333  
[www.aerodesign.ca](http://www.aerodesign.ca)

----- Original Message -----

**From:** [Pallonen Janne](#)  
**To:** [info@aerodesign.ca](mailto:info@aerodesign.ca)  
**Sent:** Monday, April 04, 2011 5:58 AM  
**Subject:** R44 ski basket?

Dear Aerodesign people,

We are looking for a R44 ski basket and noticed your product in your pages. I understood the product doesn't have EASA STC approval but you have FAA in process? As far as I know FAA STC's will be accepted quite directly by EASA, do you think your FAA process will take a long time still?

And for overall I would like to know the price for the basket anyway?

The need for a basket would be for next skiing season, starting Jan/Feb 2012 when our R44 goes back in Lapland to fly skiers.

Best regards, Janne Pallonen

\*\*\*\*\*  
Janne Pallonen  
mob. +358 40 50 222 89

Finland, Europe

**Steven Fahey**

**From:** "Pallonen Janne" <janne.pallonen@finnair.com>  
**To:** "Steven Fahey" <steve@aerodesign.ca>  
**Cc:** "Info" <info@rotorway.fi>  
**Sent:** Thursday, May 12, 2011 11:09 PM  
**Subject:** RE: R44 ski basket?  
 Thank you very much Steven!

Defenately we are interested in this model of ski basket but the only fear is that we might not have enough time to go through acceptance procedures? The need for basket would be around February 2012 when the next ski season begins in northern Finland.

If your EASA approval would be going on soon there could be possibilities to have it in time for the bilateral agreement between Canada and EASA? Anyway I assume there could be markets especially here in northern Europe area for this kind of product? I have tried to find the European manufactured one but it doesn't exist? Eventough many of R44 flying here, and central European area (alps) as well.

Do you think you could go for EASA approval for this? I have attached Rotorway Ltd (the operator) owner in this email, we just yesterday discussed on this one.

Best regards, Janne

---

**From:** Steven Fahey [mailto:steve@aerodesign.ca]  
**Sent:** 12. toukokuuta 2011 0:51  
**To:** Pallonen Janne  
**Subject:** Re: R44 ski basket?

Janne,

First I must apologize if I haven't responded already. I was examining old e-mail that had come in through the "general inquiries" account, not my usual account, and found your message. There is no sign that I replied at the time, so please forgive me!

Our R44 basket is approved only in Canada, right now. The FAA is beginning to review our application, and they will take a few more months to complete it. We do not have much experience with the EASA, but the word is that the process is very slow and costly. I am aware of an agreement between the FAA and EASA for mutual acceptance of STC's. Whether that applies to foreign-owned STC's is another matter.

The price of the basket is 9250 dollars, Canadian. Do you use Euro's?

I have attached a brochure with more information about the R44 basket. If you are still interested, we will need to consider the certification process with EASA.

Steven Fahey  
[steve@aerodesign.ca](mailto:steve@aerodesign.ca)  
 Aero Design Ltd.  
 2013 - 39th Avenue NE  
 Calgary, Alberta, Canada  
 T2E 6R7  
 tel: (403) 250-8027  
 fax: (403) 250-8333  
[www.aerodesign.ca](http://www.aerodesign.ca)

| ----- Original Message -----



## Jeff Clarke

---

**From:** Morgan Beaupre [morgan.beaupre@vieworxvision.ca]

**Sent:** December 6, 2013 2:12 PM

**To:** Jeff Clarke; Terri Beaupre

**Subject:** RE: Basket Followup

Hey Jeff,

Thanks for the follow up. We appreciate the quick work you guys did on the modifications for the basket for us.

The modifications were perfect and everything fit inside of the basket very nicely.

Due to weather we have yet to be able to get out and test the lidar unit as it has a temperature rating for no colder than minus 10, we were however able to mount everything and it all worked just as we needed.

Once we are able to get it in the air and outside of our office on the machine we will get you some pictures.

Thanks again for the quick turn around on your end.

Have a good weekend

**Morgan Beaupre B.Comm**  
**Business Operations Manager**



Office: 780-532-3353

Cell: 780-933-5020

morgan.beaupre@vieworxvision.ca

#112, 8716 108 Street

Grande Prairie, AB T8V4C7

---

**From:** Jeff Clarke [mailto:jeff@aerodesign.ca]

**Sent:** December-05-13 4:09 PM

**To:** Terri Beaupre; Morgan Beaupre

**Subject:** Basket Followup

Hi Terri, Morgan,

I wanted to follow up with you on the basket modifications. Did everything fit properly? Is the lidar scanner working out?

I would like to see some pictures of it all installed if possible.

Regards,

Jeff Clarke, CET

AERO Design Ltd.

06/12/2013



## SUPPLEMENTAL TYPE CERTIFICATE

10050758

This Supplemental Type Certificate is issued by EASA, acting in accordance with Regulation (EC) No. 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation and in accordance with Commission Regulation (EU) No. 748/2012 to

### AERO DESIGN LTD.

9888A MALASPINA ROAD  
POWELL RIVER BC V8A 0G3  
CANADA

and certifies that the change in the type design for the product listed below with the limitations and conditions specified meets the applicable Type Certification Basis and environmental protection requirements when operated within the conditions and limitations specified below:

**Original Type Certificate Number : EASA.IM.R.121**

**Type Certificate Holder : ROBINSON HELICOPTER COMPANY**

**Type Design - Model : R 44, R 44 II**

**Original STC Number : TCCA SH10-48**

#### **Description of Design Change:**

Installation of Quick Release Mounting Provisions; Installation of Quick Release Cargo Basket

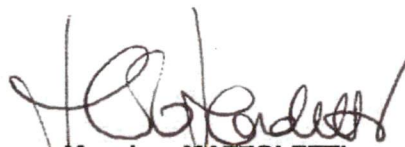
#### **EASA Certification Basis:**

The Certification Basis (CB) for the original product remains applicable to this certificate/ approval. The requirements for environmental protection and the associated certified noise and/ or emissions levels of the original product are unchanged and remain applicable to this certificate/ approval.

See Continuation Sheet(s)

**For the European Aviation Safety Agency,**

**Date of issue: 09 October 2014**

  
**Massimo MAZZOLETTI**  
**Head of Rotorcraft Department**

#### **Note:**

The following numbers are listed on the certificate:  
EASA current Project Number: 0010032368-001

SUPPLEMENTAL TYPE CERTIFICATE - 10050758 - AERO DESIGN LTD.

TE.STC.00091-003 - Copyright European Aviation Safety Agency. All rights reserved.



**Associated Technical Documentation:**

Flight Manual Supplement FMS906.90, Revision 1, dated 27 May 2014 or later revisions of the above listed documents approved by EASA in accordance with the Technical Implementation Procedures of EU/ Canada Bilateral Agreement.

Quick Release Mounting Provisions: Document Control List, DCL906-1, Revision 1, dated 2 June 2014.

Quick Release Mounting Provisions installed in accordance with DCL906-1 may remain installed if a cargo basket configuration is removed. Mounting beams may be removed leaving attachment fittings in place on the landing gear.

Installation of Quick Release Mounting Provisions is a prerequisite for installation of the External Cargo Basket Installation.

External Cargo Basket Installation: Document Control List, DCL906-2, Revision 1, dated 2 June 2014.

Cargo Basket Modifications: Document Control List DCL704, Revision 8, dated 2 June 2014. Eligibility limitations are noted on the drawings or later revisions of the above listed documents accepted by EASA in accordance with the Technical Implementation Procedures of EU/ Canada Bilateral Agreement.

**Limitations/Conditions:**

Prior to installation of this design change it must be determined that the interrelationship between this design change and any other previously installed design change and/ or repair will introduce no adverse effect upon the airworthiness of the product.

- end -

**Note:**

The following numbers are listed on the certificate:  
EASA current Project Number: 0010032368-001

SUPPLEMENTAL TYPE CERTIFICATE - 10050758 - AERO DESIGN LTD.

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**Application for Approval of Supplemental Type Certificate**

**Data protection:** Personal data included in this application is processed by EASA pursuant to Regulation (EC) No 45/2001 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data. It will be processed solely for the purposes of the performance, management and follow-up of the Application by the Agency, without prejudice to possible transmission to internal audit services, to the Court of Auditors, to the European Anti-Fraud Office (OLAF) for the purposes of safeguarding the financial interests of the European Union. The Applicant shall have the right of access to his personal data and the right to rectify any such data that is inaccurate or incomplete. Should the Applicant have any queries concerning the processing of his personal data, he shall address them to the Agency at the following address: dpo[at]easa.europa.eu. The Applicant shall have right of recourse at any time to the European Data Protection Supervisor.

**1. Applicant's Reference****1.1 Your Reference**

906

**2. Applicant Address and Contact Data****2.1 Applicant Data****2.1.1 Name and Address**  
(registered (business) name and address/legal seat of the company)

Applicant Number

300116

(A)DOA Reference

(Company) Name

Aero Design Ltd.

Street / Nr

9888A Malaspina Road

Post Code

V8A 0G3

City

Powell River, BC

Country

Canada

**2.1.2 Contact Person**  
(responsible for this application)

Title

☒ Mr ☐ Ms

Name

Clarke

First name

Jeff

Job title

Engineering Technologist

Phone/Fax

Phone: 604-483-2376

Fax: 604-483-2372

Email

jeff@aerodesign.ca

**Important Note:** First time applicants need to submit a copy of the company's **Business Registration** or similar legal document stating name and seat of the company together with the application. In case the applicant is not a company but a natural person, a copy of the person's **ID or passport** needs to be provided with the first application.

**2.2 Billing Data** (may be left blank, if same as 2.1 Applicant Data)**2.2.1 Billing Address**

(For the receipt of EASA Fees and Charges Invoices. EASA invoices are issued via post-mail to the address provided here.)

(Company) Name

Same as in section 2.1.1 (other name only in exceptional cases)

Street / Nr

PO Box

Post Code

City

Country

**2.2.2 Contact Person**

(Responsible for ensuring the EASA terms of payment are honoured. An electronic invoice copy will be issued to the email address indicated here.)

Title

☐ Mr ☒ Ms

Name

Rekve

First name

Wanda

Job title

Office Manager

Phone/Fax

Phone: 604-483-2376

Fax: 604-483-2372

Email

wanda@aerodesign.ca



**Application for Approval of Supplemental Type Certificate****2.3 Shipping Data** (may be left blank, if same as 2.1 Applicant Data)

<b>2.3.1 Certificate Delivery Address</b> (for the shipping of original EASA documents)	(Company) Name	
	Street / Nr	
	PO Box	
	Post Code	
	City	
	Country	
<b>2.3.2 Contact Person</b> (Shipping)	Title	<input type="checkbox"/> Mr <input type="checkbox"/> Ms
	Name	
	First name	
	Job title	
	Phone/Fax	
	Email	

**Application for Approval of Supplemental Type Certificate****3. Identification of Activity****Supplemental Type Certificate**

- ☒ Simple  
☐ Standard  
☐ Complex

For **revisions** to an STC, please complete an Application for **Major Change/Major Repair Design** or **Minor Change/Minor Repair Design**, as applicable.

For a **transfer** to a new STC holder, please complete an Application for **Transfer of Certificate**.

Including change to approved parts of Flight Manual (FM)

- ☒ Yes  
☐ No

**4. Product Identification****4.1 Fees & Charges Information****Large Aeroplanes**

- ☐ > 150 000 kg  
☐ > 50 000 kg ≤ 150 000 kg  
☐ > 22 000 kg ≤ 50 000 kg  
☐ > 5 700 kg ≤ 22 000 kg (excluding commuter)

**General Aviation**

- ☐ > 5 700 kg ≤ 22 000 kg (including commuter)  
☐ > 2 000 kg ≤ 5 700 kg  
☐ ≤ 2 000 kg  
☐ High Performance Aircraft (≤ 5 700 kg)  
☐ Very Light Aeroplane  
☐ Powered Sailplane  
☐ Sailplane  
☐ Light Sport Aeroplane

**Rotorcraft, Balloons & Airships**

- ☐ Large Rotorcraft  
☐ Medium Rotorcraft  
☒ Small Rotorcraft  
☐ Very Light Rotorcraft  
☐ Balloon  
☐ Large Airship  
☐ Medium Airship  
☐ Small Airship

**Propulsion**

- ☐ Turbine Engine > 25 kN take-off thrust  
☐ Turbine Engine ≤ 25 kN take-off thrust  
☐ Turbine Engine > 2000 kW take-off power  
☐ Turbine Engine ≤ 2000 kW take-off power  
☐ Non-Turbine Engine  
☐ CS-22.H, CS VLR App. B Engine  
☐ Propeller for use on aircraft > 5 700 kg MTOW  
☐ Propeller for use on aircraft ≤ 5 700 kg MTOW  
☐ CS-22J Class Propeller  
☐ APU (Parts & Appliances)

**4.2 Applicability**

Type Certificate Number

EASA.IM.R.121; FAA H11NM; TCCA H-97

Type Certificate Holder

Robinson Helicopter Company

Type Name

R44

Model(s)

R44, R44 II

**4.3 Airworthiness Code**

CS-27

**Application for Approval of Supplemental Type Certificate****4.4 European Light Aircraft**☐ Non-ELA☐ ELA 1☐ ELA 2

please consult the completion instructions for definitions of ELA 1 and ELA 2 aircraft

**5. Original Approval**(if applicable)**5.1 Third Country Approval/Project N°**

Approval/Project Number

SH10-48, Issue 2

Issued by

Transport Canada

Issued on

19 June 2014

**6. Description****6.1 Title**

Installation of Quick Release Mounting Provisions and Cargo Basket.

**6.2 Description**

Installation of attachment fittings on the landing gear corner fittings. Installation of mounting beams on the attachment fittings. Installation of cargo basket on mounting beams.

**6.3 Affected Areas**  
(including manuals)

See compliance program CP906, revision 1; Flight Manual Supplement FMS906.90, Instructions for Continued Airworthiness ICA906.91 and 906.92

**6.4 Re-Investigations**

None

**6.5 Justification**

Transport Canada has issued an STC

**7. Part 21 demonstration of eligibility****I declare that this application is:**☐ Within the current approved scope of work of the applicant's DOA/ADOA☐ Undertaken by another person than the applicant for, or holder of, a certificate (Part 21.A.2)

Name

(Company) Name

DOA/ADOA N°

DOA/ADOA N°

☐ Following an application for Design Organisation Approval (FO.DOA.00080) or Alternative Procedures to Design Organisation Approval (FO.DOA.00081).

Application Date

Project N°

if known

☐ Following an application for a change to the scope of work via EASA Form FO.DOA.00081 or FO.DOA.00082.

Application Date

Project N°

if known

☒ **Without DOA/ADOA**☐ Use of Article 8.2 of Regulation 748/2012☐ Covered by a Certification Programme in accordance with 21.A20(c) for ELA 1 aircraft or engine/propeller



## Application for Approval of Supplemental Type Certificate

installed on an ELA 1 aircraft.

☒ Bilateral Agreement/Working Arrangement is in force




**Application for Approval of Supplemental Type Certificate****8. Applicant's declaration and acceptance of the General Conditions and Terms of Payment**

I declare that I have the legal capacity to submit this application to EASA and that all information provided in this application form is correct and complete.

I have understood that I am submitting an application for which fees or charges will be levied by EASA in accordance with Commission Regulation (EC) on the fees and charges levied by the European Aviation Safety Agency, as last amended and available from <http://easa.europa.eu/> Legislation > Fees & Charges.

I acknowledge that I have read and understood the Agency's Terms of Payment (see <http://easa.europa.eu/> Legislation > Fees & Charges > General Conditions and Terms of Payment) and agree to abide by them. I declare to be aware that fees or charges, as well as all relevant travel costs must be paid whether or not the application is successful and that they might not be refundable. Moreover, I declare that I am aware of the consequences of non-payment.

23 JUNE 2014 POWELL RIVER, BC, CANADA	JEFF CLARKE	
Date/Location	Name	Signature

**Important Note:** EASA cannot accept applications without signature. Please make sure that you sign the application.

This Application should be sent by fax, e-mail or regular mail to:

**European Aviation Safety Agency**  
Applications and Outsourcing Services Department  
Postfach 10 12 53  
D-50452 Köln  
Germany

Fax: +49 – (0)221 - 89990 ext. 4458  
E-mail: [STC@easa.europa.eu](mailto:STC@easa.europa.eu)

**Completion Instructions**

Completion  
Instructions

Please double-click on the icon to  
access the completion instructions



## Completion Instructions for the Application for Approval of Supplemental Type Certificate

This Application Completion Instruction Sheet will provide you with any additional instructions and requirements necessary to complete the Application for Approval of Supplemental Type Certificate. It is strongly recommended to use the English language in completing the form. Please complete the form in a **clearly legible** way.

# - Field Name	Completion Instructions																				
<b>1.1 Your Reference</b>	Please provide a <b>unique</b> internal reference to this application. This reference will be used as an identifier of your application in all communication, e.g. invoice/s, acceptance letter, by EASA.																				
<b>2.1.1 Name and Address</b>	<p><b>Applicant Number:</b> If known, please enter your EASA Applicant Number. This number follows the pattern 3XXXXX and can be found on any application acceptance letter received for previous applications. It is called either "Customer Number " or "Applicant Number" on the application acceptance letter.</p> <p>Please enter the full <b>name of the company</b> as it appears on the Business Registration or similar legal document stating name and seat of the company. If applicable also enter the Trade Name, Doing-business-as and the Company registration number. Please enter the address of the registered office as it appears on the Business Registration or similar legal document. First time applicants need to submit a copy of the company's <b>Business Registration</b> or similar legal document stating name and seat of the company together with the application. If applicable, an additional translation of this document (done by an authorised translator, signed and stamped) should be submitted.</p> <p>In case the applicant is not a company but a <b>natural person</b>, please enter the full name as it appears in the ID Card/Passport and enter the address of registry. A copy of the person's <b>ID or passport</b> needs to be provided with the first application.</p>																				
<b>2.1.2 Contact Person</b>	The name and contact details specified in this section are those of the person responsible for the application.																				
<b>2.2.1 Billing Address</b>	The (company) name and address specified in this section will be printed on the invoice/s EASA will issue. A (company) name deviating from the one entered in section 2.1.1 can only be accepted by EASA upon justified request. A written statement, signed and stamped, from the legal entity which is taking responsibility to pay the EASA F&C invoice(s) is to be submitted together with the application.																				
<b>2.2.2 Contact Person</b>	The name and contact details specified in this section are those of the person that will be contacted for all issue connected with the EASA invoice/s. (e.g. accounts payable clerk). Responsible for ensuring the EASA terms of payment are honoured. An electronic invoice copy will be issued to the email address indicated here.																				
<b>2.3.1 Shipping Address</b>	The (company) name and address specified in this section is where EASA will send the original certificate/approval.																				
<b>2.3.2 Contact Person</b>	The contact person of this section is the person the original certificate/approval will be sent to.																				
<b>3. Identification of Activity</b>	<p>Please indicate the classification of the STC.</p> <p><b>F&amp;C Regulation - Part V - Explanatory Note (7)</b></p> <table border="1"> <thead> <tr> <th></th><th>Simple</th><th>Standard</th><th>Complex</th></tr> </thead> <tbody> <tr> <td>EASA Supplemental Type Certificate (STC) EASA major design changes EASA major repairs</td><td>STC, major design change, or repair, only involving current and well-proven justification methods, for which a complete set of data (description, compliance check-list and compliance documents) can be communicated at time of application, <b>and</b> for which the applicant has demonstrated experience, <b>and</b> which can be assessed by the project certification manager alone, or with a limited involvement of a single discipline specialist.</td><td>All other STC, major design changes or repairs.</td><td>Significant (*) STC or major design change.</td></tr> <tr> <td>Validated US Federal Aviation Administration (FAA) STC</td><td>Basic (**)</td><td>Non-basic</td><td>Significant non-basic</td></tr> <tr> <td>Validated FAA major design change</td><td>Level 2 (**) major design changes when not automatically accepted. (***)</td><td>Level 1 (**)</td><td>Significant level 1</td></tr> <tr> <td>Validated FAA major repair</td><td>N/A (automatic acceptance)</td><td>Repairs on critical component (**)</td><td>N/A</td></tr> </tbody> </table>		Simple	Standard	Complex	EASA Supplemental Type Certificate (STC) EASA major design changes EASA major repairs	STC, major design change, or repair, only involving current and well-proven justification methods, for which a complete set of data (description, compliance check-list and compliance documents) can be communicated at time of application, <b>and</b> for which the applicant has demonstrated experience, <b>and</b> which can be assessed by the project certification manager alone, or with a limited involvement of a single discipline specialist.	All other STC, major design changes or repairs.	Significant (*) STC or major design change.	Validated US Federal Aviation Administration (FAA) STC	Basic (**)	Non-basic	Significant non-basic	Validated FAA major design change	Level 2 (**) major design changes when not automatically accepted. (***)	Level 1 (**)	Significant level 1	Validated FAA major repair	N/A (automatic acceptance)	Repairs on critical component (**)	N/A
	Simple	Standard	Complex																		
EASA Supplemental Type Certificate (STC) EASA major design changes EASA major repairs	STC, major design change, or repair, only involving current and well-proven justification methods, for which a complete set of data (description, compliance check-list and compliance documents) can be communicated at time of application, <b>and</b> for which the applicant has demonstrated experience, <b>and</b> which can be assessed by the project certification manager alone, or with a limited involvement of a single discipline specialist.	All other STC, major design changes or repairs.	Significant (*) STC or major design change.																		
Validated US Federal Aviation Administration (FAA) STC	Basic (**)	Non-basic	Significant non-basic																		
Validated FAA major design change	Level 2 (**) major design changes when not automatically accepted. (***)	Level 1 (**)	Significant level 1																		
Validated FAA major repair	N/A (automatic acceptance)	Repairs on critical component (**)	N/A																		





# Completion Instructions for the Application for Approval of Supplemental Type Certificate

	<p>(*) "Significant" is defined in paragraph 21A.101 (b) of the Annex to Regulation (EC) No 1702/2003 (and similarly in FAA 14CFR 21.101 (b)).</p> <p>(**) For the definitions of "basic", "non-basic", "level 1", "level 2", "critical component" and "Certifying Authority", see the applicable bilateral agreement under which the validation takes place.</p> <p>(***) Automatic acceptance criteria by EASA for level 2 major changes are defined in the applicable bilateral agreement under which the validation takes place.</p>	
<b>4.1 Fees and Charges Information</b>	<p>The weight category shall refer to the maximum take-off weight (MTOW) of the aircraft type/model as specified in the type certificate data sheet.</p> <p>The MTOW of the initial Type Certificates and subsequently of the majority (more than 50%) of the related models covered by this Type Certificate determines the applicable MTOW category.</p> <p>High Performance Aircraft in the weight category up to 5 700 kg [12 500 lbs] are those aeroplanes having a Mmo greater than 0.6 and/ or a maximum operating altitude above 25 000 ft. They shall be charged as defined in the categories 'over 5 700 kg[12 500 lbs] up to 22 000 kg'.</p> <p>Large Rotorcraft refers to CS 29 and CS 27 cat A;</p> <p>Small Rotorcraft refers to CS 27 with Maximum Take Off Weight (MTOW) below 3 175 Kg and limited to 4 seats, including pilot;</p> <p>Medium Rotorcraft refers to other CS 27.</p> <p>Small Airships refer to</p> <ul style="list-style-type: none"> <li>all Hot Air Airships independent of their size,</li> <li>Gas Airships up to a volume 2 000 m<sup>3</sup>;</li> </ul> <p>Medium Airships refer to Gas Airships with a volume of</p> <ul style="list-style-type: none"> <li>more than 2 000 m<sup>3</sup> up to 15 000 m<sup>3</sup>;</li> </ul> <p>Large Airships refer to Gas Airships with a volume of</p> <ul style="list-style-type: none"> <li>more than 15 000 m<sup>3</sup>.</li> </ul> <p>Changes/repairs on APU shall be regarded as changes/repairs to engines of the same power rating.</p>	
<b>4.2 Applicability</b>	<p>Identify the Type Certificate Number, the Type Certificate Holder, the Type and Model(s) to which this application is applicable. If applicable, please also identify variant(s).</p>	
<b>4.3 Airworthiness Code</b>	<p>Identify the applicable airworthiness code proposed to be used for EASA certification.</p>	
<b>4.4 European Light Aircraft</b>	<b>ELA1</b>	<b>ELA2</b>
	ELA1 aircraft means the following manned European Light Aircraft:	ELA2 aircraft means the following manned European Light Aircraft:
	an airplane with a Maximum Take-off Mass (MTOM) of 1 200 kg or less that is not classified as complex motor-powered aircraft	an airplane with a Maximum Take-off Mass (MTOM) of 2 000 kg or less that is not classified as complex motor-powered aircraft
	a sailplane or powered sailplane of 1 200 kg MTOM or less	a sailplane or powered sailplane of 2 000 kg MTOM or less
	a balloon with a maximum design lifting gas or hot air volume of <ul style="list-style-type: none"> <li>not more than 3 400 m<sup>3</sup> for hot air balloons</li> <li>1 050 m<sup>3</sup> for gas balloons</li> <li>300 m<sup>3</sup> for tethered gas balloons</li> </ul>	a balloon
	an airship designed for not more than <ul style="list-style-type: none"> <li>4 occupants</li> </ul> and <ul style="list-style-type: none"> <li>a maximum design lifting gas or hot air volume of not more than 3 400 m<sup>3</sup> for hot air airships</li> </ul> and <ul style="list-style-type: none"> <li>1 000 m<sup>3</sup> for gas airships</li> </ul>	a hot air airship a gas airship complying with all of the following characteristics: <ul style="list-style-type: none"> <li>3% maximum static heaviness</li> <li>Non-vector thrust (except reverse thrust)</li> <li>Conventional and simple design of: structure, control system and ballonet system</li> <li>Non-power assisted controls</li> </ul>
		a Very Light Rotorcraft

Please take note of Art. 21.A.101 (e) of Commission Regulation (EC) No 748/2012 with regard to the expiry of your application.



## Completion Instructions for the Application for Approval of Supplemental Type Certificate

<b>5.1 EASA Approval N°</b>	Identify the original EASA or grandfathered NAA approval number in case of a revision to an existing approval.	
<b>5.2 Third Country Approval N°</b>	Identify the original 3rd country approval number in case of a revision or validation of an existing approval.	
<b>6.1 Title</b>	Give a short title not exceeding 40 characters.	
<b>6.2 Description</b>	Give a brief description of the design change.	
<b>6.3 Affected Areas</b>	Identify all parts of the type design and the approved manuals affected by the change and the certification specifications and environmental protection requirements with which the change has been designed.	
<b>6.4 Re-Investigations</b>	If necessary, make reference to further attached documents, e.g. relating to Part 21, § 21A.101 compliance.	
<b>6.5 Justification</b>	Identify any re-investigations necessary to show compliance of the changed with the applicable certification specification and environmental requirements; if necessary make reference to further attached documents.	
<b>7. Part 21 demonstration of eligibility</b>	Please choose the applicable way of demonstrating eligibility in accordance with Part 21 by ticking the relevant box. Reference can be made to ongoing projects for new (A)DOA or extending the scope of the (A)DOA. Applicants from countries not located in an EASA member state do not need to demonstrate eligibility via an (A)DOA or certification programme.	
	<b>Certification Programme</b> Demonstration of capability via a certification programme for:	<b>AP DOA</b> Demonstration of capability via AP DOA for:
	ELA1 aircraft	ELA2 aircraft
	Engine [to be] installed on ELA1 aircraft	Engine [to be] installed on ELA2 aircraft
	Propeller [to be] installed on ELA1 aircraft	Propeller [to be] installed on ELA2 aircraft
		Piston Engine
		Fixed or adjustable pitch propeller





DESIGN CHANGE APPROVAL APPLICATION

DEMANDE D'APPROBATION D'UNE MODIFICATION DE LA CONCEPTION

Legal name and address of applicant Nom et adresse légal du demandeur  <b>Aero Design Ltd. 9888A Malaspina Road Powell River, BC Canada, V8A 0G3</b>		Legal name and address of prospective holder Nom et adresse légal du titulaire éventuel  <b>Aero Design Ltd. 9888A Malaspina Road Powell River, BC Canada, V8A 0G3</b>		Name and address for billing purposes (if different than applicant) Nom et adresse aux fins de facturation (si différent du demandeur)	
Identification of aeronautical product / Identification du produit aéronautique					
Make / Marque <b>Robinson</b>		Model / Modèle <b>R44, R44 II</b>		Registration / Immatriculation <b>All eligible</b>	
				Serial No. / N° du série <b>All eligible</b>	
				Part No. / N° de la pièce	
Request for (check appropriate box) / Objet de la demande (Cochez les carrés selon le cas)				Type Design Examination by Foreign Authority Examen de la définition de type par autorité étrangère	
<input type="checkbox"/> STC CTS  <input type="checkbox"/> STC (single serial number) CTS (numéro de série simple)  <input type="checkbox"/> STC (multiple serial numbers) CTS (numéros de série multiples)  <input type="checkbox"/> Type Certificate Revision Révision de certificat de type  <input checked="" type="checkbox"/> Revision No. <b>SH10-48</b> Révision N°				<input type="checkbox"/> Repair Design Approval (RDA) Approbation de la conception de réparation (ACR)  <input type="checkbox"/> Repair Design Approval - Process Repair ACR - Processus de réparation  <input type="checkbox"/> Part Design Approval (PDA) Approbation de la conception de pièce (ACP)  <input checked="" type="checkbox"/> Application to a foreign authority is requested La demande à une autorité étrangère est demandée.  <input type="checkbox"/> Type design examination of foreign change Examen de la définition de type modification étrangère  Identify Identifier <b>FAA</b>	
<input type="checkbox"/> Restricted Category Type of Operation Catégorie restreinte Type d'opération					
Title and brief description of modification, repair or replacement part, including effects of changes (use additional pages if necessary). Refer to CAR 521.155(b)(i) for details. Titre et brève description de la modification, de la réparation ou de la pièce de rechange, y compris les effets des changements (utiliser des feuilles supplémentaires si nécessaire). Référez-vous à RAC 521.155(b)(i) pour des détails.  <b>External Cargo Basket Installation Installation of cargo basket and mounting provisions on the helicopter</b>					
Applicable Type Certificate (TC) / Certificat de type (CT) pertinent					
TC No. / N° de CT <b>H-97</b>		Issue No. / N° de l'édition <b>7</b>		Identify State of Design / Identifier l'état de conception <b>USA</b>	
The applicant is responsible for the control of product manufacture / Le demandeur est responsable du contrôle de la fabrication du produit					
<input checked="" type="checkbox"/> Yes Oui					
<input type="checkbox"/> No Non					
If no, identify who is responsible Si non, identifier qui est responsable					
Documentation to be submitted Documentation à soumettre				Applicant Demandeur	
				Submitted Soumis	
				Yes Oui	
				No Non	
Proposed certification basis Proposition de base de certification					
Certification plan in accordance with CAR 521.155(d) Plan de certification selon RAC 521.155(d)					
Applicant's remarks / Remarques du demandeur <b>Application is for amendment to FAA STC SR02991NY to encompass changes approved on issue 2 of the Canadian STC.</b>					
I hereby certify that the information contained herein is correct and complete. I agree to pay charges as prescribed in Part 1, Subpart 4 of the CARs (CAR 104-Charges). Je certifie que les renseignements figurant ci-dessus sont exacts et complets. Je m'engage à payer les redevances prescrites à la sous-partie 4 de la partie I du RAC (sous-partie 104 du RAC - Redevances).					
Name and Signature of Applicant / Nom et signature du demandeur 		VICE PRESIDENT Title / Poste		2014-05-05 Date (yyyy-mm-dd) / Date (aaaa-mm-jj)	



Transport  
Canada

Transports  
Canada

EASA uses FAA basis of cert

# Type Certificate Data Sheet

Number: H-97

Issue No.: 7

Approval Date: Refer Below

Issue Date: July 31, 2009

This data sheet, which is part of Type Certificate No. H-97, prescribes the conditions and limitations under which the product(s) for which the type certificate was granted meet(s) the standards of airworthiness required by the Canadian Aviation Regulations.

## Type Certificate Holder:

Robinson Helicopter Company  
2901 Airport Drive  
Torrance, California 90505

## Models

R44

R44 II

- |    |                     |                          |                               |
|----|---------------------|--------------------------|-------------------------------|
| 1. | <u>Model R44</u>    | <u>(Normal Category)</u> | <u>Approved July 27, 1993</u> |
| 2. | <u>Model R44 II</u> | <u>(Normal Category)</u> | <u>Approved May 30, 2003</u>  |

Except as otherwise noted below, the conditions and limitations prescribed by this data sheet are those specified in the FAA Type Certificate Data Sheet (TCDS) H11NM Revision 6, dated July 9, 2009. Subsequent revisions to the FAA TCDS are not applicable to Canadian registered aircraft. In addition the following requirements apply:

## Basis of Certification

- 1) As per H11NM plus Canadian Airworthiness Manual Chapter 527 change 527-2, dated 1 February, 1992 for the following paragraphs:

527.1301-1	Rotorcraft operations after Ground Cold Soak
527.1557(c)(3)	Miscellaneous Markings and Placards
527.1583(h)	Operating Limitations - Ambient Temperature

- 2) The noise requirements of ICAO Annex 16, Volume 1, (Second Basis Edition dated 1988), Chapter 11.

## Approved Publications

### R44

Rotorcraft Flight Manual as specified in H11NM in addition to FAA Approved R44 Pilot's Operating Handbook Canadian Supplement dated May 28, 2003 or later approved revision.

### R44 II

Rotorcraft Flight Manual as specified in H11NM in addition to FAA Approved R44 II Pilot's Operating Handbook Canadian Supplement dated May 28, 2003 or later approved revision.

**I. Model R44 (Normal Category Rotorcraft), Approved December 10, 1992, (cont'd)**

Center of Gravity (C.G.) Range	Longitudinal C.G. Range			Lateral C.G. Range		
	Gross Weight (lbs.)	Forward (in.)	Aft (in.)	Long. C. G. (in.)	Left (in.)	Right (in.)
	1550	92.0	102.5	92.0	-3.0	+3.0
	2000	92.0	102.5	100.0	-3.0	+3.0
	2200	92.0	100.25	102.5	-1.5	+1.5
	2400	93.0	98.0			

Note: Straight line variation between points shown.

Empty Weight C.G. Range	Calculated C.G. with 150 lb. pilot and full fuel must be STA 102.5 or forward.
Maximum Weight	2400 lb.
Minimum Crew	1 pilot in forward right seat.
Number of Seats	4 (3 for Police and ENG Version) Seat Locations: Pilot and Forward Passenger at STA 49.5 Aft Passengers at STA 79.5
Maximum Baggage	50 pounds of baggage and installed equipment in any baggage compartment. For any seat location, the maximum combined weight of the seat load, baggage, and installed equipment is 300 lbs.

Fuel Capacity	Tanks Without Bladders		Tanks With Bladders		Location (STA)
	Capacity (gal.)	Usable (gal.)	Capacity (gal.)	Usable (gal.)	
Main	31.6	30.6	30.5	29.5	106.0
Auxiliary	18.5	18.3	17.2	17.0	102.0

Oil Capacity	Component	Capacity (qt.)	Location (STA)
	Engine	9	110.0
	Main Rotor Transmission	2	100.0
	Tail Rotor Transmission	0.11	327.0
	Hydraulic Reservoir (if installed)	0.65	117.0

Maximum Operation Altitude	Density Altitude Limit 14,000 ft. Maximum altitude above ground level is 9000 ft. to allow landing within 5 minutes in case of fire.
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Manufacturer's Serial Numbers	0002, 0004 thru 9999, except 1140
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Certification Basis	14 CFR Part 27, dated February 1, 1965, including Amendments 27-1 through 27-24, Exemption No. 5473 dated July 2, 1992, to §27.955(a)(7) and 27.1305(q), and Exemption No. 6692 dated October 17, 1997 to §27.695.
---------------------	--

14 CFR Part 36 Amendment 36-20.

Equivalent Safety Finding:

Number TD10352LA-R/S-1

14CFR Part 27.1401(d), Anticollision Light System



**II. Model R44 II (Normal Category Rotorcraft), Approved October 3, 2002, (cont'd)**

Maximum Weight 2500 lb.  
2400 lb. for intentional water landings with fixed or pop-out floats.

Minimum Crew 1 pilot in forward right seat.

Number of Seats 4 (3 for Police and ENG Versions)  
Seat Locations: Pilot and Forward Passenger at STA 49.5  
Aft Passengers at STA 79.5

Maximum Baggage 50 pounds of baggage and installed equipment in any baggage compartment. For any seat location, the maximum combined weight of the seat load, baggage, and installed equipment is 300 lbs.

Fuel Capacity

Tank	Tanks Without Bladders		Tanks With Bladders		Location (STA)
	Capacity (gal.)	Usable (gal.)	Capacity (gal.)	Usable (gal.)	
Main	31.6	30.6	30.5	29.5	106.0
Auxiliary	18.5	18.3	17.2	17.0	102.0

Oil Capacity

Component	Capacity (qt.)	Location (STA)
Engine	9	110.0
Main Rotor Transmission	2	100.0
Tail Rotor Transmission	0.11	327.0
Hydraulic Reservoir	0.65	117.0

Maximum Operation Altitude Density Altitude Limit - 14,000 ft.  
Maximum altitude above ground level is 9000 ft. to allow landing within 5 minutes in case of fire.

Manufacturer's Serial Numbers 1140, 10001 and subsequent

Certification Basis 14 CFR Part 27, dated February 1, 1965, including Amendments 27-1 through 27-24, and Exemption No. 6692 dated October 17, 1997 to §27.695.

14 CFR Part 36 Amendment 36-24.

Equivalent Safety Finding:

Number TD10352LA-R/S-1

14CFR Part 27.1401(d), Anticollision Light System

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. In addition, the following FAA-approved Rotorcraft Flight Manual is required:

R44 II Rotorcraft Flight Manual (RTR 462) dated October 3, 2002, or later revision (See NOTES 7 & 8).

DATA PERTINENT TO BOTH MODELS

Datum 100 in. forward of main rotor centerline.

Leveling Means Refer to the R44 Maintenance Manual and Instructions for Continued Airworthiness (RTR 460).





Aero Design Ltd.  
604-483-AERO (2376)

9888A Malaspina Road  
Powell River, BC, Canada, V8A 0G3

04 July 2014

Transport Canada  
Aircraft Certification Division  
11<sup>th</sup> Floor, Canada Place  
9700 Jasper Avenue  
Edmonton, Alberta  
T5J 4E6

Attn: Jack Staal

Your File : C-14-\_\_\_\_\_  
Our File : 906

Re: Robinson R44 Cargo Basket - FAA STC application

Jack,

Please find attached the following documents related to this project:

TCCA Design Change Approval Application Form

FAA STC Application form 8110-12

Canadian STC

FAA STC

Certification Plan

Document Control List

Document Control List

Document Control List

Document Control List

Document Control List

Flight Manual Supplement

Instructions for Continued Airworthiness

MSI53 Review of ICA906.91 Rev. 2

Instructions for Continued Airworthiness

MSI53 Review of ICA906.92 Rev. 2

SH10-48

SR02991NY

CP906

DCL906-1

DCL906-2

DCL906-11

DCL906-12

DCL704

FMS906.90

ICA906.91

ICA906.92

Issue 2

Original

Revision 1

Revision 1

Revision 1

Revision 1

Revision 1

Revision 8

Revision 1

Revision 2

Revision 2

Drawings

Cargo Basket Installation (2 sheets)

Mounting Provisions Installation (4 sheets)

Basket Assembly

Basket Body Fabrication

Basket Lid Fabrication

Clamp Assemblies

Aft Attachment Hoop

Forward Attachment Hoop

Placard

Fitting

Forward Beam

Aft Beam

Lug

90601

90602

90610

90611

90612

90620

90621

90622

90627

90628

90630

90631

69823

Revision 1

Revision 1

Revision 1

Revision 1

Revision 1

Revision 1

Revision 1

Revision 1

Revision 1

Revision 1

Revision 1

Revision 1

Revision 2



Aero Design Ltd.  
604-483-AERO (2376)

9888A Malaspina Road  
Powell River, BC, Canada, V8A 0G3

Hoop	49210	Revision 2
Spacer	49215	Revision 1
Spacer	49216	Revision 1
Lid Brace Installation	84240	Revision 0
Handle Installation	84255	Revision 2
Handle Assembly	84261	Revision 2
Basket Handle Provisions	84262	Revision 2
Lid Handle Provisions	84263	Revision 0
Handle Lever	84265	Revision 2
Handle Bracket	84267	Revision 1
Bushing	84272	Revision 1
Lid Bracket	36273	Revision 2
Handle Bushing	36274	Revision 3
Handle Support and Bushing	36275	Revision 4
Handle Bar	36277	Revision 1
Handle Springs	36278	Revision 3
Lid Brace Assembly (2 sheets)	36280	Revision 3
Lid Door Modification	70402	Revision 2
Auxiliary Latch Modification	70403	Revision 5
Lid Walkway Modification	70405	Revision 4
Hangar Wheel Modification	70408	Revision 1
Hangar Wheel Assembly	70428	Revision 1
Hangar Wheel Parts	70438	Revision 1

A CD with the above data is included for submission to the FAA.

Regards,

Jeff Clarke, P.Tech.(Eng.)  
Vice President

Encl.



U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

FORM APPROVED  
OMB No. 2120-0018  
EXP DATE: 11/30/2013

APPLICATION FOR TYPE CERTIFICATE, PRODUCTION CERTIFICATE, OR SUPPLEMENTAL TYPE  
CERTIFICATE

1. Name Of Applicant Aero Design Ltd.		2. Application made for : <input type="checkbox"/> Type Certificate <input type="checkbox"/> Production Certificate <input type="checkbox"/> Supplemental Type Certificate <input type="checkbox"/> Amended Type Certificate <input checked="" type="checkbox"/> Amended Supplemental Type Certificate		3. Product Involved <input checked="" type="checkbox"/> Aircraft <input type="checkbox"/> Engine <input type="checkbox"/> Propeller
4. Address 9888A Malaspina Road		b. City Powell River	State BC, Canada	c. Zip Code V8A 0G3
5. TYPE CERTIFICATE (Complete item 5a below)				
a. Model designation(s) (All models listed are to be completely described in the required technical data, including drawings representing the design, material, specifications, construction, and performance of the aircraft, aircraft engine, propeller which is the subject of this application.)				
6. PRODUCTION CERTIFICATE (Complete items 6a-c below. Submit with this form, in manual form, one copy of quality control data or changes thereto covering new products, as required by applicable FAR.)				
a. Factory address (if different from above)		b. Application is for <input type="checkbox"/> New production certificate <input type="checkbox"/> Additions to production Certificate (Give P.C. No.)		P.C. No.
c. Applicant is holder of or a licensee under a Type Certificate or a Supplemental Type Certificate (Attach evidence of licensing agreement and give certificate number)				T.C./S.T.C. No.
7. SUPPLEMENTAL TYPE CERTIFICATE (Complete items 7a-d below)				
a. Make and model designation of product to be modified Robinson R44, R44 II				
b. Description of modification Installation of provisions on the helicopter to allow equipment such as cargo baskets to be quickly installed or removed without using tools. Installation of a cargo basket on the mounting provisions.				
c. Will data be available for sale or release to other persons? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		d. Will parts be manufactured for sale? (Ref. FAR 21.303) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
8. CERTIFICATION - I certify that the above statements are true. <input type="checkbox"/>				
Signature of certifying official 		Title Vice President		Date 06 June 2014





DESIGN CHANGE APPROVAL APPLICATION

DEMANDE D'APPROBATION D'UNE MODIFICATION  
DE LA CONCEPTION

Legal name and address of applicant Nom et adresse légal du demandeur  <b>Aero Design Ltd. 9888A Malaspina Road Powell River, BC, Canada V8A 0G3</b>	Legal name and address of prospective holder Nom et adresse légal du titulaire éventuel  <b>Aero Design Ltd. 9888A Malaspina Road Powell River, BC, Canada V8A 0G3</b>	Name and address for billing purposes (if different than applicant) Nom et adresse aux fins de facturation (si différent du demandeur)
---	---	---

Identification of aeronautical product / Identification du produit aéronautique				
Make / Marque <b>Robinson</b>	Model / Modèle <b>R44, R44 II</b>	Registration / Immatriculation <b>All eligible</b>	Serial No. / N° du série <b>All eligible</b>	Part No. / N° de la pièce

Request for (check appropriate box) / Objet de la demande (Cochez les carrés selon le cas)	Type Design Examination by Foreign Authority Examen de la définition de type par autorité étrangère
<input type="checkbox"/> STC CTS <input type="checkbox"/> STC (single serial number) CTS (numéro de série simple) <input type="checkbox"/> STC (multiple serial numbers) CTS (numéros de série multiples) <input type="checkbox"/> Type Certificate Revision Revision de certificat de type <input type="checkbox"/> Revision No. _____ Révision N° _____	<input type="checkbox"/> Repair Design Approval (RDA) Approbation de la conception de réparation (ACR) <input type="checkbox"/> Repair Design Approval - Process Repair ACR - Processus de réparation <input type="checkbox"/> Part Design Approval (PDA) Approbation de la conception de pièce (ACP)  <input checked="" type="checkbox"/> Application to a foreign authority is requested La demande à une autorité étrangère est demandée.  <input type="checkbox"/> Type design examination of foreign change Examen de la définition de type modification étrangère  Identify Identifier _____

<input type="checkbox"/> Restricted Category Catégorie restreinte	Type of Operation Type d'opération
--	---------------------------------------

Title and brief description of modification, repair or replacement part, including effects of changes (use additional pages if necessary). Refer to CAR 521.155(b)(i) for details.  
Titre et brève description de la modification, de la réparation ou de la pièce de rechange, y compris les effets des changements (utiliser des feuilles supplémentaires si nécessaire).  
Référez-vous à RAC 521.155(b)(i) pour des détails.

**External Cargo Basket Installation**  
**Installation of cargo basket and mounting provisions on the helicopter.**

Applicable Type Certificate (TC) / Certificat de type (CT) pertinent		
TC No. / N° de CT <b>H-97</b>	Issue No. / N° de l'édition <b>7</b>	Identify State of Design / Identifier l'état de conception <b>USA</b>

The applicant is responsible for the control of product manufacture / Le demandeur est responsable du contrôle de la fabrication du produit	
<input checked="" type="checkbox"/> Yes Oui	<input type="checkbox"/> No Non
If no, identify who is responsible Si non, identifier qui est responsable _____	

Documentation to be submitted Documentation à soumettre	Applicant Demandeur	
	Submitted Soumis	
	Yes Oui	No Non
Proposed certification basis Proposition de base de certification		<input checked="" type="checkbox"/>
Certification plan in accordance with CAR 521.155(d) Plan de certification selon RAC 521.155(d)		<input checked="" type="checkbox"/>

Applicant's remarks / Remarques du demandeur <b>Application to EASA for STC.</b>
---

I hereby certify that the information contained herein is correct and complete. I agree to pay charges as prescribed in Part 1, Subpart 4 of the CARs (CAR 104-Charges).  
Je certifie que les renseignements figurant ci-dessus sont exacts et complets. Je m'engage à payer les redevances prescrites à la sous-partie 4 de la partie I du RAC (sous-partie 104 du RAC - Redevances).

 Name and Signature of Applicant / Nom et signature du demandeur	<b>VICE PRESIDENT</b> Title / Poste	<b>2014-06-23</b> Date (yyyy-mm-dd) / Date (aaaa-mm-jj)
---	--	--





Department of Transport

# Supplemental Type Certificate

This approval is issued to:

Aero Design Ltd.  
9888A Malaspina Road  
Powell River, British Columbia  
Canada V8A 0G3

**Number:** SH10-48

**Issue No.:** 2

**Approval Date:** October 21, 2010

**Issue Date:** June 19, 2014

**Responsible Office:**

Prairie and Northern

**Aircraft/Engine Type or Model:**

ROBINSON R44, R44 II

**Canadian Type Certificate or Equivalent:**

H-97 (ROBINSON R44, R44 II)

**Description of Type Design Change:**

Installation of Quick Release Mounting Provisions; Installation of Quick Release Cargo Basket

**Installation/Operating Data,  
Required Equipment and Limitations:**

**Configuration A - Quick Release Mounting Provisions:**

Installation of Quick Release Mounting Provisions to be completed in accordance with Transport Canada approved, Aero Design Ltd. Document Control List, DCL906-1, Revision 1, dated 2 June 2014, or later approved revision.

Transport Canada accepted, Aero Design Ltd. Instructions for Continued Airworthiness ICA 906.91, Revision 2, dated 27 May 2014, or later approved revision is required with this installation.

Quick Release Mounting Provisions installed in accordance with DCL906-1 may remain installed if a cargo basket configuration is removed. Mounting beams may be removed leaving attachment fittings in place on the landing gear.

**Conditions:** This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.



F.J.B. Wright  
For Minister of Transport



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NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

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**Configuration B - External Cargo Basket**

Installation of Configuration A, Quick Release Mounting Provisions, is a prerequisite for installation of the Configuration B, External Cargo Basket Installation. Installation of Quick Release Cargo Basket to be completed in accordance with Transport Canada approved, Aero Design Ltd. Document Control List, DCL906-2, Revision 1, dated 2 June 2014, or later approved revision.

Transport Canada approved, Aero Design Ltd. Flight Manual Supplement FMS906.90, Revision 1, dated 27 May 2014, or later approved revision is required with this installation.

Transport Canada accepted, Aero Design Ltd. Instructions for Continued Airworthiness ICA906.92, Revision 2, dated 27 May 2014, or later accepted revision is required with this installation.

**Cargo Basket Modifications:**

Modifications to the Cargo Basket configurations eligible in accordance with Transport Canada approved, Aero Design Ltd. Document Control List DCL704, Revision 8, dated 2 June 2014, or later approved revision. Eligibility limitations are noted on the drawings.

**Basis of Certification:**

The basis of certification remains as defined in the applicable Type Certificate Data Sheets.

— End —





## DESIGN CHANGE APPROVAL APPLICATION

DEMANDE D'APPROBATION D'UNE MODIFICATION  
DE LA CONCEPTION


Legal name and address of applicant Nom et adresse légal du demandeur  <b>Aero Design Ltd. 9888A Malaspina Road Powell River, BC, Canada V8A 0G3</b>		Legal name and address of prospective holder Nom et adresse légal du titulaire éventuel  <b>Aero Design Ltd. 9888A Malaspina Road Powell River, BC, Canada V8A 0G3</b>		Name and address for billing purposes (if different than applicant) Nom et adresse aux fins de facturation (si différent du demandeur)	
Identification of aeronautical product / Identification du produit aéronautique					
Make / Marque <b>Robinson</b>		Model / Modèle <b>R44, R44 II</b>		Registration / Immatriculation <b>All eligible</b>	
				Serial No. / N° du série <b>All eligible</b>	
				Part No. / N° de la pièce	
Request for (check appropriate box) / Objet de la demande (Cochez les carrés selon le cas)				Type Design Examination by Foreign Authority Examen de la définition de type par autorité étrangère	
<input type="checkbox"/> STC CTS				<input type="checkbox"/> Repair Design Approval (RDA) Approbation de la conception de réparation (ACR)	
<input type="checkbox"/> STC (single serial number) CTS (numéro de série simple)				<input type="checkbox"/> Repair Design Approval - Process Repair ACR - Processus de réparation	
<input type="checkbox"/> STC (multiple serial numbers) CTS (numéros de série multiples)				<input type="checkbox"/> Part Design Approval (PDA) Approbation de la conception de pièce (ACP)	
<input type="checkbox"/> Type Certificate Revision Revision de certificat de type				<input type="checkbox"/> Application to a foreign authority is requested La demande à une autorité étrangère est demandée.	
<input checked="" type="checkbox"/> Revision Révision No. N° <b>SH10-48</b> Current Issue Édition active <b>1</b>				<input type="checkbox"/> Type design examination of foreign change Examen de la définition de type modification étrangère	
<input type="checkbox"/> Restricted Category Catégorie restreinte				Identify Identifier	
Type of Operation Type d'opération					
Title and brief description of modification, repair or replacement part, including effects of changes (use additional pages if necessary). Refer to CAR 521.155(b)(i) for details. Titre et brève description de la modification, de la réparation ou de la pièce de rechange, y compris les effets des changements (utiliser des feuilles supplémentaires si nécessaire). Référez-vous à RAC 521.155(b)(i) pour des détails. <b>External Cargo Basket Installation Installation of cargo basket and mounting provisions on the helicopter.</b>					
Applicable Type Certificate (TC) / Certificat de type (CT) pertinent					
TC No. / N° de CT <b>H-97</b>		Issue No. / N° de l'édition <b>7</b>		Identify State of Design / Identifier l'état de conception <b>USA</b>	
The applicant is responsible for the control of product manufacture / Le demandeur est responsable du contrôle de la fabrication du produit					
<input checked="" type="checkbox"/> Yes Oui <input type="checkbox"/> No Non If no, identify who is responsible Si non, identifier qui est responsable					
Documentation to be submitted Documentation à soumettre				Applicant Demandeur	
				Submitted Soumis	
				Yes Oui	
				No Non	
Proposed certification basis Proposition de base de certification				<input checked="" type="checkbox"/>	
Certification plan in accordance with CAR 521.155(d) Plan de certification selon RAC 521.155(d)				<input checked="" type="checkbox"/>	
Applicant's remarks / Remarques du demandeur <b>Re-issue is to update holder information.</b>					
I hereby certify that the information contained herein is correct and complete. I agree to pay charges as prescribed in Part 1, Subpart 4 of the CARs (CAR 104-Charges). Je certifie que les renseignements figurant ci-dessus sont exacts et complets. Je m'engage à payer les redevances prescrites à la sous-partie 4 de la partie I du RAC (sous-partie 104 du RAC - Redevances).					
Name and Signature of Applicant / Nom et signature du demandeur 		Title / Poste <b>VILE-PRESIDENT</b>		Date (yyyy-mm-dd) / Date (aaaa-mm-jj) <b>2014-05-29</b>	



## DECLARATION OF CONFORMITY WITH THE CERTIFICATION BASIS

In accordance with Canadian Aviation Regulations Subpart 521, I hereby declare that the design of the Quick Release Mounting Provisions and Cargo Basket Installation, as detailed in the data approved by Transport Canada on approval SH10-48, Issue 2, has been demonstrated to conform to the best of my knowledge to the basis of certification established by the Minister for that approval in file C-14-0519.

Aero Design Ltd.

per:   
Signature

Jeff Clarke  
Print Name

Vice President  
Title

04 June 2014  
Date





## SIGNED UNDERTAKING

In accordance with CAR 521 Aero Design Ltd. hereby

*Company to hold the approval document(s):*

undertake to carry out the responsibilities of a design approval document holder, as set out in Division VIII of Part V, Subpart 21 of the CARs, regarding:

1. Technical capability,
2. Service difficulty reporting,
3. Establishing a service difficult reporting system,
4. Investigation of service difficulty reports,
5. Mandatory changes,
6. Transfers,
7. Record keeping and loss or disposal of records,
8. Manuals,
9. Instructions for continued airworthiness, and
10. Supplemental integrity instructions

The responsibilities noted above are with reference to the data which may be found with one or more of the following numbers:

Transport Canada file number: C-14-0519


*and / or*

Project Reference number: 906

*and / or*

Approval Number: SH10-48, Issue 2

X

  
*Signature of holder's authorized person:*

04 June 2014

*Date:*

Vice President

*Position / Title:*

Number	Title	Rev (current approved)	Rev (new)	Description of change
SH10-48	Transport Canada STC <b>EASA STC</b>	1	2	New address, changes below <b>New</b>
SR02991NY	FAA STC	original	(amend)	New address, changes below
<b>CP906</b>	<b>Certification Plan - Including compliance program</b>	0	✓1	Shows changes from TC accepted TC accepted CP906 Rev. 0
<b>DCL906-1</b>	<b>Document Control List - Mounting Provisions Installation</b>	0	pdf ✓1	Changes below, new address
90602	Mounting Provisions Installation	0	✓1	TB (Title block updated for new address), hardware updated
FMS906.90	Flight Manual Supplement - Cargo Basket	0	✓1	Approval #'s on cover
ICA906.91	Instructions for Continued Airworthiness - Mounting Provisions	1	✓2	New address, added instructions
<b>DCL906-2</b>	<b>Document Control List - Cargo Basket Installation</b>	0	✓1	Changes below, new address
90601	Cargo Basket Installation	0	✓1	TB
FMS906.90	Flight Manual Supplement - Cargo Basket	0	✓1	Approval #'s on cover
ICA906.92	Instructions for Continued Airworthiness - Cargo Basket	1	✓2	New address, added instructions
<b>DCL906-11</b>	<b>Document Control List - Mounting Provisions Fabrication</b>	0	✓1	Changes below, new address
90620	Clamp Assemblies	0	✓1	TB, add alternate anodize finish
90630	Forward Beam Assembly	0	✓1	TB, upper hook , support tube ass'y (item 04), bracket added (item 10), material changed (item 07/08/09/14)
90631	Aft Beam Assembly	0	✓1	TB, down tube + pad pads longer, mat'l changed (item 07/08/09/12)
ER906.01	Engineering Report	0	✓0	No change
FTP906.03	Flight Test Plan and Report	0	✓0	No change
<b>DCL906-12</b>	<b>Document Control List - Basket Assembly</b>	0	✓1	Changes below, new address
90610	Cargo Basket Assembly	0	✓1	TB, hinge, h/w p/n's updated, add lid prop drawing 84240
90611	Basket Fabrication	0	✓1	TB, # welds down side, welding rod for s/s, ref dims added
90612	Lid Fabrication	0	✓1	TB, # welds down braces, welding rod for s/s
90621	Basket Components - Aft Attachment Hoop	0	✓1	TB, handle provisions added, cap P/N updated
90622	Basket Components - Forward Attachment Hoop	0	✓1	TB
90627	Basket Components - Placard	0	✓1	TB, logo and address on placard
90628	Basket Components - Fitting	--	✓1	Omitted on original DCL, TB

Number	Title	Rev	Rev	Description of change
<b>DCL906-12</b>	(Continued)	(current approved)	(new)	
69823	Basket Components - Lug	1	✓ 2	TB
49210	Basket Components - Hoop	1	✓ 2	TB
49215	Basket Components - Spacer	0	✓ 1	TB, material <i>letter</i>
49216	Basket Components - Spacer	0	✓ 1	TB, material "
84240	Lid Prop Installation	--	✓ 0	New drawing - details were missing from 90610, Rev. 0
84255	Handle Assembly	0	✓ 2	TB
84261	Handle Bar Assembly	0	✓ 2	TB
84262	Basket Handle Provisions Assembly	0	✓ 2	TB, lid provisions moved to 84263
84263	Lid Handle Provisions Assembly	--	✓ 0	New drawing - gives bracket assembly a P/N
84265	Handle Lever	1	✓ 2	TB
84267	Handle Bracket	0	✓ 1	TB
84272	Bushing	0	✓ 1	TB
36273	Lid Bracket	1	✓ 2	TB, alternate 304 stainless material <i>letter</i>
36274	Bushing	2	✓ 3	TB <i>letter</i>
36275	Bushing	3	✓ 4	TB, material specs added, bushing (01) material, tip of support (02) reduced
36277	Handle Bar	0	✓ 1	TB
36278	Spring	2	✓ 3	TB
36280	Brace	2	✓ 3	TB
906 906 ER959.01	Engineering Report - Basket Installation	0	✓ 0	No change
ER959.02	Engineering Report - Load Test <i>FLT TEST</i>	0	✓ 0	No change
ER842.01	Engineering Report - Handle Assembly	0	✓ 0	No change
	Flight Test Report - Transport Canada	--	--	No change
<b>DCL704</b>	<b>Document Control List - Modifications</b>	6	✓ 8	Changes below, new address
	Open Forward End Modification - B206L/407 Fixed and			
70401	MD600N only	1	✓ 1	Not applicable
70402	Lid Door Modification	1	✓ 2	TB, model list
70403	Auxiliary Latch Modification	3	✓ 5	TB, model list, P/Ns updated, tab (04) material, welding notes
	Open Forward End Modification - B206L/407 Quick			
70404	Release only	1	✓ 2	Not applicable, change at Rev. 7
70405	Lid Step Modification	2	✓ 4	TB, model list, alternate rivet, note 7
70406	Open Forward End Modification - AS350 and B206B only	1	✓ 2	Not applicable, change at Rev. 7
70407	Open Forward End Modification - EC135 only	0	✓ 0	Not applicable
70408	Installation, Hangar Wheel	0	✓ 1	TB, hardware, typo

Number	Title	Rev	Rev	Description of change
DCL704	(Continued)	(current approved)	(new)	
	Open Forward End Modification - B206L/407 Quick			
70411	Release only	--	✓ 0	Not applicable, added at Rev. 7
70428	Assembly, Hangar Wheel	0	✓ 1	TB, hardware, subassembly removed
70438	Parts, Hangar Wheel	0	✓ 1	TB, chamfer, hole, anodizing



**CERTIFICATION PLAN**  
**CP906**

---

**ROBINSON R44, R44 II**

**EXTERNAL CARGO BASKET**  
**REVISION TO UPDATE HOLDER**

Prepared by: Jeff Clarke, P.Tech.(Eng.)

Revision 1, 23 May 2014  
(replaces Compliance Program CP906, Rev. 0)

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Aero Design Ltd.



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## 1.0 INTRODUCTION

This certification plan details the means and methods of compliance for the Airworthiness Requirements shown on the Compliance Program (Appendix A).

This reissue of approval SH10-48 to issue 2 is to update the holder address and incorporate minor design changes into the approval. Application for an EASA STC and amendment to FAA STC SR02991NY will follow reissue of the Canadian approval.

## 2.0 PROJECT DESCRIPTION

Installation of quick release mounting provisions on the landing gear cross tubes. The provisions consist of a pair of stainless steel mounting beams attached with aluminum clamps to the cross tube corner fittings. The configuration is similar in construction to the approved Eurocopter AS350 Cargo Basket configuration.

Installation of a cargo basket on the mounting provisions. The cargo basket uses the same construction and attachment means as other approved Aero Design Ltd. baskets.

## 3.0 BASIS OF CERTIFICATION

TCDS H-97, Issue 7:

As per H11NM plus Canadian Airworthiness Manual Chapter 527 change 527-2, dated 1 February, 1992 for the following paragraphs:

527.1301-1 Rotorcraft operations after Ground Cold Soak

527.1557(c)(3) Miscellaneous Markings and Placards

527.1583(h) Operating Limitations -Ambient Temperature

H11NM Revision 6:

14 CFR Part 27, dated February 1, 1965, including Amendments 27-1 through 27-24, Exemption No. 5473 dated July 2, 1992, to §27.955(a)(7) and 27.1305(q), and Exemption No. 6692 dated October 17, 1997 to §27.695.

Note that the Robinson R44 qualifies as an excepted product to Changed Product Rule in accordance with CAR 521.158(6).

## 4.0 APPLICABILITY OF AIRWORTHINESS DIRECTIVES

Airworthiness Directives applicable to the Robinson R44 and R44 II were reviewed on 23 May 2014, and none were found to affect this project.

## 5.0 PERSONNEL

Applicant: Aero Design Ltd. – Jeff Clarke, P.Tech.(Eng.)

Delegate: None – no changes to findings of compliance, see section 5.0 and 6.0

Transport Canada: Jack Staal, PNR Region



## 6.0 CERTIFICATION PLAN

Re-issue of the approval is to reflect the change of address of the holder. Minor changes to the approved drawings are also incorporated at this issue. Evaluation of the changes is addressed in Section 6.0. There are no changes to the design data that invalidate the existing findings of compliance.

### 6.1 CAR 527 Subpart G – Operating Limitations and Information

Paragraphs 527.1505, .1525, .1581, .1583, .1585, .1587, .1589

#### 6.1.1 Means of Compliance

- a) Test

#### 6.1.2 Method of Compliance

- a) TCCA Flight Test

#### 6.1.3 Compliance Documents, Data and Testing

Flight Test Report – prepared by Michel Brulotte – contains performance information (existing)

Flight Manual Supplement FMS906.90 to Revision 1 – revision to update approval numbers on cover only.

#### 6.1.4 Schedule

FMS906.90 submit to TC for review by 06 June 2014

#### 6.1.5 Level of Delegation

None

#### 6.1.6 Level of Involvement

Deliverable	Transport Canada Level of Involvement
FMS906.90	Requires Transport Canada review and approval

### 6.2 527.1529

#### 6.2.1 Means of Compliance

- a) Instructions for Continued Airworthiness provided

#### 6.2.2 Method of Compliance

- a) Instructions for Continued Airworthiness are prepared in accordance with CAR 527 Appendix A

### 6.2.3 Compliance Documents, Data and Testing

Instructions for Continued Airworthiness ICA906.91 to Revision 2 – Mounting Provisions  
Changes from TCCA accepted Revision 1:

1. Cover: Contact information updated
2. Section 0-3: Contact information updated
3. Section 4: Add EASA limitation statement
4. Section 5-3: Protective treatment updated to reference R44 Maintenance Manual for paint touch up
5. Section 25: Update hardware part numbers (AN960 to NAS1149 etc.), metric torque specs added

Instructions for Continued Airworthiness ICA906.92 to Revision 2 – Cargo Basket

Changes from TCCA accepted Revision 1:

1. Cover: Contact information updated
2. Section 0-3: Contact information updated
3. Section 4: Add EASA limitation statement
4. Section 5-1: Add inspection for lid prop to annual inspection
5. Section 5-3: Protective treatment updated to reference R44 Maintenance Manual for paint touch up
6. Section 11: Add new placard configuration for updated contact information
7. Section 25: Update hardware part numbers, metric torque specs added
8. Section 25-4: Add procedure for replacing handle springs
9. Section 25-5: Add procedure for replacing lid prop

### 6.2.4 Schedule

ICA906.91, ICA906.92 – submit to TC for review by 06 June 2014

### 6.2.5 Level of Delegation

None

### 6.2.6 Level of Involvement

Deliverable	Transport Canada Level of Involvement
ICA906.91	Requires Transport Canada review and acceptance
ICA906.92	Requires Transport Canada review and acceptance

## **7.0 EFFECT OF CHANGES ON EXISTING FINDINGS OF COMPLIANCE**

All documents - excluding engineering reports, load test reports, flight test reports or similar documents - are revised to incorporate the new company contact information and logo, which does not affect any finding of compliance. Changes beyond the address and logo are addressed below. A list of all changed documents is in Appendix B.

### **7.1 General**

The following changes are made on a number of drawings as indicated on the drawing.

Change: Hardware part numbers updated to current (e.g. AN960 Washer part numbers updated to NAS1149).

Reason: Update to current part numbers.

Effect: None.

Change: HuckMax rivets added as alternative to CherryMax rivets.

Reason: HuckMax rivets provide better forming of the rivet tail.

Effect: None. Both fasteners meet the requirements of NAS9301.

### **7.2 Document Control List DCL906-1 to Revision 1 – Mounting Provisions Installation**

FMS906.90 to Revision 1 addressed in section 5.0 above. Requires TCCA approval.

ICA906.91 to Revision 2 addressed in section 5.0 above. Requires TCCA acceptance.

### **7.3 Document Control List DCL906-2 to Revision 1– Cargo Basket Installation**

FMS906.90 to Revision 1 addressed in section 5.0 above. Requires TCCA approval.

ICA906.92 to Revision 2 addressed in section 5.0 above. Requires TCCA acceptance.

### **7.4 Document Control List DCL906-11 to Revision 1 – Mounting Provisions Fabrication**

#### **7.4.1 Drawing 90620 to Revision 1 – Attachment Fittings**

Change: Alternate finish of hard anodizing per MIL-A-8625F added.

Reason: Hard anodizing provides for better resistance to mechanical damage than paint, which in turn provides for better corrosion resistance.

Effect: The part has improved corrosion resistance properties over the approved configuration.



#### **7.4.2 Drawing 90630 to Revision 1 – Forward Mounting Beam**

Change: Web added across slot in upper hook (item 11).

Reason: The web increases the contact area for welding the hook to the beam.

Effect: Strength increased over approved configuration. Weight change is negligible.

Change: Support tube parts separated (item 04).

Reason: Change provides a part number for the support tube sub-assembly.

Effect: None.

Change: Bracket added (item 10).

Reason: Original configuration specified two dimensionally similar, but different parts with the same part number. Change gives each part its own number.

Effect: None.

Change: Material for caps (items 07, 08, 09) changed from 0.032" 321 stainless steel to 0.050" 304 stainless steel.

Reason: Increased thickness is easier to weld to the heavier wall of the tubing (0.063"). 304 material is easier to procure than 321.

Effect: Caps are non-structural. Weight change is negligible.

Change: Material for strap (item 14) thickness changed from 0.100" to 0.125"

Reason: 0.125" easier to procure than 0.100".

Effect: Strength increased over approved configuration. Weight change is negligible.

#### **7.4.3 Drawing 90631 to Revision 1 – Aft Mounting Beam**

Change: Length of down tube (item 03) increased from 16.06" to 16.44"; length of pad (item 18) increased to suit; length of slot in pad increased to suit.

Reason: Easier to hook basket into longer slot and engage in lower keyway on installation.

Effect: Larger pad provides greater weld length to transfer load into down tube. Strength increased over approved configuration. Weight change is negligible.

Change: Length of pad (item 10) increased from 1.69" to 1.81".

Reason: Stop block (item 13) is welded over keyway in pad. The weld at the top of the pad into the tube removes some of the material where the stop block sits, which no longer provides a flat surface. The change increases the length of the pad to provide a flat surface for the stop block.

Effect: Added section is above wide diameter of keyway, it does not support the basket loads. Weight change is negligible.

Change: Support tube parts separated (item 04). Carry over from 90630, Rev. 1.

Change: Material for caps (items 07, 08, 09) changed from 0.032" 321 stainless steel to 0.050" 304 stainless steel. Carry over from 90630, Rev. 1.



Change: Material for strap (item 12) thickness changed from 0.100" to 0.125". Carry over from 90630, Rev. 1.

## **7.5 Document Control List DCL906-12 to Revision 1 – Cargo Basket Assembly**

### **7.5.1 Drawing 90610 to Revision 1 – Cargo Basket Assembly**

Change: Hinge length corrected from 53.5" to 54".

Reason: Hinge must be cut to full inch lengths to be symmetrical to allow rivets to land on lug locations of hinge when drilled with jigs.

Effect: None.

Change: Lid prop assembly (part number 36280-01) changed to lid prop installation (part number 84240-01).

Reason: Fasteners for installing the lid prop were not specified on the original drawing. Installation of the lid prop is the same for all baskets, and this drawing can be supplied with replacement parts.

Effect: None.

### **7.5.2 Drawing 90611 to Revision 1 – Basket Body Fabrication**

Change: # of welds down sides increased from first 2 intersections to first 5 intersections.

Reason: Standardization with other baskets.

Effect: Better load transfer from mesh into frame over approved configuration.

Change: Reference dimensions added.

Reason: Easier fabrication of components.

Effect: None.

Change: Stainless steel welding rod added to welding notes.

Reason: Lid prop lug material changed to stainless steel - see drawing 49215, Rev. 1.

Effect: None.

### **7.5.3 Drawing 90612 to Revision 1 – Basket Lid Fabrication**

Change: # of welds down braces increased from every 3<sup>rd</sup> intersection to first 5 then every 2<sup>nd</sup> intersection

Reason: Standardization with other baskets.

Effect: Better load transfer from mesh into frame over approved configuration.

Change: Stainless steel welding rod added to welding notes.

Reason: Approved configuration uses stainless steel for lid handle brackets. Lid prop lug material changed to stainless steel - see drawing 49216, Rev. 1.

Effect: None.

**7.5.4 Drawing 90621 to Revision 1 – Attachment Hoop Fabrication**

Change: Provisions for handle in accordance with drawing 84262 added.

Reason: Provisions for handle are shown on basket body fabrication drawing 90611, but the hoop is made prior to fabrication in accordance with drawing 90611, and the provisions are easier to install before the hoop is assembled.

Effect: None.

Change: Part number for transition cap (90621-06) changed to 76423-04.

Reason: Same part, 76423-04 used on all other drawings with this configuration.

Effect: Non-structural cap.

**7.5.5 Drawing 84240 to Revision 0 – Lid Prop Installation**

Change: New drawing.

Reason: Installation of the lid prop is the same for all baskets, and this drawing can be supplied with replacement parts.

Effect: None.

**7.5.6 Drawing 84262 to Revision 2 – Basket Handle Provisions Assembly**

Change: Move lid handle provisions to drawing 84263.

Reason: Basket and lid assembled separately, more detail for lid assembly (see 84263).

Effect: None.

**7.5.7 Drawing 84263 to Revision 0 – Lid Handle Provisions Assembly**

Change: New drawing.

Reason: Lid bracket sub-assembly identified with a part number to allow fabrication and tracking independent of basket.

Effect: None.

**7.5.8 Drawing 49215 to Revision 1 and 49216 to Revision 1 – Lid Prop Spacers**

Change: Alternate 304 stainless steel material added

Reason: Lid prop wears powder coating off flange of spacers, causing corrosion on mild steel part. Stainless steel material corrects this problem.

Effect: None.

### **7.5.9 Drawing 36273 to Revision 2 – Lid Bracket**

Change: Material changed from 321 to 304 stainless steel.  
Reason: Easier to procure 304 stainless steel.  
Effect: None. Bracket is pivot point for handle, stop for handle when opening lid, and catch for spring to hold handle down.

Change: Hole for support (see 36275) reduced from 0.313" to 0.130"  
Reason: Hole is to weld support to bracket. It is easier to weld parts of similar thickness. New size allows the parts to be fused without filler rod.  
Effect: None. Support is stop for handle when opening lid, and catch for spring to hold handle down.

### **7.5.10 Drawing 36275 to Revision 4 – Bushing and Support**

Change: Material of bushing (item 01) changed from bronze to brass  
Reason: Part has always been brass, incorrect material specified.  
Effect: None. Bushing is for handle to rotate on.

Change: Tip of support (item 02) reduced from 0.313 to 0.125"  
Reason: Tip is welded to bracket (see 36273). It is easier to weld parts of similar thickness.  
Effect: None. Support is stop for handle when opening lid, and catch for spring to hold handle down.

## **7.6 Document Control List DCL704 to Revision 8 – Basket Modifications**

### **7.6.1 Drawing 70402 to Revision 2 – Lid Door Modification**

Change: Model list updated to show excluded models instead of eligible models.  
Reason: This installation is eligible for all models of basket except as shown. The drawing will not need to be revised with every new model of basket, only those that must not use the modification.  
Effect: None.

### **7.6.2 Drawing 70403 to Revision 5 – Auxiliary Latch Modification**

Change: Model list updated to remove individual models except as shown.  
Reason: All models use configuration B except the models shown due to the different shape of the forward end. The drawing will not need to be revised with every new model of basket.  
Effect: None.

Change: Part numbers updated.  
Reason: Component parts referred to a different drawing, all parts are shown on this drawing.  
Effect: None.



Change: Material for tab (item 04) changed from 4130 steel to 304 stainless steel.  
Reason: The tabs protrude from the basket lid where it is vulnerable to having the powder coating chipped off, leading to corrosion. Change to stainless steel material prevents corrosion.  
Effect: The part is less vulnerable to corrosion. The tabs are lightly loaded as they are for a secondary rubber catch for the lid, in addition to the handle in the basic approved configuration. The opposite end of the catch is plastic. Either the plastic or rubber parts will fail before the stainless steel tabs.

Change: Welding notes added.  
Reason: No welding information provided on previous revision.  
Effect: None.

### **7.6.3 Drawing 70405 to Revision 4 – Lid Step Modification**

Change: Model list removed.  
Reason: It was not expected that a lid step would be requested on the R44 basket, as the only part that can be inspected from the basket is the rotor head, however a request was received for this modification. The drawing will not need to be revised with every new model of basket.  
Effect: None.

Change: Add note 7 allowing width of step to match lid door in accordance drawing 70402. Width increases from 6" to 7.5".  
Reason: Aesthetics, allows the lid door and step to look continuous when the door is down.  
Effect: None.

### **7.6.4 Drawing 70408 to Revision 1 – Hangar Wheel Modification**

Change: Title corrected to "Hangar Wheel" (drawings 70408, 70428 and 70438)  
Reason: Title was "Hanger Wheel®". Aero Design does not have a registered trademark on the name.  
Effect: None.

### **7.6.5 Drawing 70428 to Revision 1 – Hangar Wheel Assembly**

Change: Hangar wheel base sub-assembly removed  
Reason: Sub-assembly was screws threaded into base plate to be used as studs. The screws were not retained sufficiently to install nuts without a screwdriver, defeating the purpose. Threaded holes changed to through holes, see 70438.  
Effect: None.



### **7.6.6 Drawing 70438 to Revision 1 – Hangar Wheel Modification**

Change: Chamfer at tube intersection increased from 0.125" to 0.25"

Reason: 0.125" chamfer did not provide sufficient clearance from weld bead on all baskets.

Effect: None.

Change: Threaded holes changed to through holes.

Reason: See sub-assembly comment above.

Effect: None.

Change: Alternate finish of hard anodizing per MIL-A-8625F added.

Reason: Hard anodizing provides for better resistance to mechanical damage than paint, which in turn provides for better corrosion resistance.

Effect: The part has improved corrosion resistance properties over the approved configuration.

## **APPENDIX A**

### **COMPLIANCE PROGRAM**

APPLICANT: Aero Design Ltd.  
9888 A Malaspina Road  
Powell River, BC, Canada  
V8A 0G3

DATE: 0 05 August 2010 (Original)  
REVISION No. 1 23 May 2014

CORRESPONDANCE TO:  
(If other than applicant)

MAKE: Robinson  
MODEL: R44, R44 II

REGISTRATION: All Eligible  
SERIAL No.: All Eligible

NATURE OF WORK: Quick Release Mounting Provisions Installation; Quick Release Cargo Basket Installation

TYPE CERTIFICATE DATA SHEET: H-97, Issue 7

MODEL CERTIFICATION BASIS: FAR 27 dated 1 February 1965, including amendments 27-1 thru 24-24

MODIFICATION CERTIFICATION BASIS: FAR 27 dated 1 February 1965, including amendments 27-1 thru 24-24

Airworthiness Requirement	Change from CP Rev. 0	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
<b>Subpart B</b>						
27.29	No	Empty Weight and Corresponding C of G	Data specified on inst'n drawing			
27.51	No	Takeoff	Flight Test			
27.65	No	Climb: All Engines Operating	Flight Test			
27.71	No	Gliding Performance	Flight Test			
27.75	No	Landing	Flight Test			
27.141	No	Flight Characteristics – General	Flight Test			
27.143	No	Controllability and Maneuverability	Flight Test			
27.151	No	Flight controls	Flight Test			
27.161	No	Trim Control	Flight Test			
27.171	No	Stability – General	Flight Test			
27.173	No	Longitudinal Stability	Flight Test			
27.175	No	Demonstration of Longitudinal Stability	Flight Test			
27.177	No	Static Directional Stability	Flight Test			
27.241	No	Ground Resonance	Flight Test			
27.251	No	Vibration	Flight Test			
<b>Subpart C</b>						
27.301	No	Strength Requirements Loads – Air Drag Loads	Analysis			

Airworthiness Requirement	Change from CP Rev. 0	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
27.301	No	Loads – Inertia Loads	Compliance with 27.337 and 27.561			
27.303	No	Factor of Safety	Analysis			
27.305	No	Strength and Deformation	Analysis and Test			
27.307	No	Proof of Structure	Analysis and Test			
27.337	No	Limit Maneuvering Load Factor	Analysis and Test			Critical load factor in downward direction, up load condition applied to security of lid and latching mechanism.
27.547	No	Main Rotor Structure	Flight Test			Mast bending consideration.
27.561	No	Emergency Landing Conditions	N/A			Cargo basket and cargo are external to cabin forward deflection or failure of basket poses no threat to occupants
<b>Subpart D</b>		<b>Design and Construction</b>				
27.601	No	Design	Drawings			Design is conventional.
27.603	No	Materials	Drawings			Materials used are specified in Mil-Hdbk-5H.
27.605	No	Fabrication Methods	Drawings			Design is conventional.
27.609	No	Protection of Structure	Drawings			
27.611	No	Inspection Provisions	Drawings			Design is easy to inspect.
27.613	No	Material Strength Properties and Design Values	Values used as per Mil-Hdbk-5H			
27.625	No	Fitting Factor	Analysis			
27.783	No	Doors	N/A			Installation does not block doors.
27.787(a)	No	Cargo and Baggage Compartments	Compliance with 23.301 through 307			
27.787(b)	No	Cargo and Baggage Compartments	Design			Basket is a closed container.
27.787(c), (d)	No	Cargo and Baggage Compartments	N/A			Cargo is external to helicopter.
27.807	No	Emergency Exits	N/A			Installation does not block doors.
27.865	No	External Load Attaching Means	N/A			Cargo basket is classified as a cargo compartment.
27.1387	No	Position Light System Dihedral Angles	N/A			No change from Type Approval.
27.1401	No	Anticollision Light System	N/A			No change from Type Approval.
<b>Subpart G</b>		<b>Operating Limitations and Information</b>				
27.1505	No	Never Exceed Speed	Flight Test, Flight Manual Supplement			V <sub>NE</sub> limits as specified in the existing Flight Manual Supplement (110 kts.)



Airworthiness Requirement	Change from CP Rev. 0	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
27.1525	No	Kinds of Operation	Flight Manual Supplement			Limited to VFR only.
27.1529	Yes	Instructions for Continuing Airworthiness	ICA Provided	X		
27.1557(a)	No	Miscellaneous Markings and Placards – Baggage Compartments	Placard			
27.1557(b)	No	Miscellaneous Markings and Placards	N/A			
27.1557(c)	No	Miscellaneous Markings and Placards	N/A			
27.1557(d)	No	Miscellaneous Markings and Placards	N/A			
27.1581	Yes	Rotorcraft Flight Manual – General	Flight Manual Supplement	X		
27.1581(e)	No	Rotorcraft Flight Manual – General - Units	Flight Manual Supplement			SI and imperial units included
27.1583(c)	No	Operating Limitations – Weight and Loading Information	Flight Manual Supplement			
27.1585	No	Operating Procedures	Flight Manual Supplement			
27.1587	No	Performance Information	Flight Manual Supplement			
27.1589	No	Loading Information	Flight Manual Supplement & Placard			Placard installed on basket lid
<b>Canadian Airworthiness Manual Chapter 527, change 527-2, dated 1 February 1992</b>						
527.1301-1	No	Rotorcraft Operations After Ground Cold Soak	N/A			
527.1557(c) (3)	No	Miscellaneous Marking and Placards	N/A			Not a fuel tank
527.1583(h)	No	Operating Limitations – Ambient Temperature	N/A			No change from Type Approval

Items of compliance that are marked "\*\*\*" indicate paragraphs for which extension of delegation is requested.

## **APPENDIX B**

### **LIST OF CHANGED DOCUMENTS**

Number	Title	Rev (current approved)	Rev (new)	Description of change
SH10-48	Transport Canada STC <b>EASA STC</b>	1	2	New address, changes below <b>New</b>
SR02991NY	FAA STC	original	(amend)	New address, changes below
<b>CP906</b>	<b>Certification Plan - Including compliance program</b>	<b>0</b>	<b>1</b>	<b>Shows changes from TC accepted TC accepted CP906 Rev. 0</b>
<b>DCL906-1</b>	<b>Document Control List - Mounting Provisions Installation</b>	0	1	Changes below, new address
90602	Mounting Provisions Installation	0	1	TB (Title block updated for new address), hardware updated
FMS906.90	Flight Manual Supplement - Cargo Basket	0	1	Approval #'s on cover
ICA906.91	Instructions for Continued Airworthiness - Mounting Provisions	1	2	New address, added instructions
<b>DCL906-2</b>	<b>Document Control List - Cargo Basket Installation</b>	0	1	Changes below, new address
90601	Cargo Basket Installation	0	1	TB
FMS906.90	Flight Manual Supplement - Cargo Basket	0	1	Approval #'s on cover
ICA906.92	Instructions for Continued Airworthiness - Cargo Basket	1	2	New address, added instructions
<b>DCL906-11</b>	<b>Document Control List - Mounting Provisions Fabrication</b>	0	1	Changes below, new address
90620	Clamp Assemblies	0	1	TB, add alternate anodize finish
90630	Forward Beam Assembly	0	1	TB, upper hook , support tube ass'y (item 04), bracket added (item 10), material changed (item 07/08/09/14)
90631	Aft Beam Assembly	0	1	TB, down tube + pad pads longer, mat'l changed (item 07/08/09/12)
ER906.01	Engineering Report	0	0	No change
FTP906.03	Flight Test Plan and Report	0	0	No change
<b>DCL906-12</b>	<b>Document Control List - Basket Assembly</b>	0	1	Changes below, new address
90610	Cargo Basket Assembly	0	1	TB, hinge, h/w p/n's updated, add lid prop drawing 84240
90611	Basket Fabrication	0	1	TB, # welds down side, welding rod for s/s, ref dims added
90612	Lid Fabrication	0	1	TB, # welds down braces, welding rod for s/s
90621	Basket Components - Aft Attachment Hoop	0	1	TB, handle provisions added, cap P/N updated
90622	Basket Components - Forward Attachment Hoop	0	1	TB
95927	Basket Components - Placard	0	1	TB, logo and address on placard
95928	Basket Components - Fitting	--	1	Omitted on original DCL, TB

Number	Title	Rev	Rev	Description of change
<b>DCL906-12</b>	(Continued)	(current approved)	(new)	
69823	Basket Components - Lug	1	2	TB
49210	Basket Components - Hoop	1	2	TB
49215	Basket Components - Spacer	0	1	TB, material
49216	Basket Components - Spacer	0	1	TB, material
84240	Lid Prop Installation	--	0	New drawing - details were missing from 90610, Rev. 0
84255	Handle Assembly	0	2	TB
84261	Handle Bar Assembly	0	2	TB
84262	Basket Handle Provisions Assembly	0	2	TB, lid provisions moved to 84263
84263	Lid Handle Provisions Assembly	--	0	New drawing - gives bracket assembly a P/N
84265	Handle Lever	1	2	TB
84267	Handle Bracket	0	1	TB
84272	Bushing	0	1	TB
36273	Lid Bracket	1	2	TB, alternate 304 stainless material
36274	Bushing	2	3	TB
36275	Bushing	3	4	TB, material specs added, bushing (01) material, tip of support (02) reduced
36277	Handle Bar	0	1	TB
36278	Spring	2	3	TB
36280	Brace	2	3	TB
ER959.01	Engineering Report - Basket Installation	0	0	No change
ER959.02	Engineering Report - Load Test	0	0	No change
ER842.01	Engineering Report - Handle Assembly	0	0	No change
	Flight Test Report - Transport Canada	--	--	No change
<b>DCL704</b>	<b>Document Control List - Modifications</b>	6	8	Changes below, new address
	Open Forward End Modification - B206L/407 Fixed and			
70401	MD600N only	1	1	Not applicable
70402	Lid Door Modification	1	2	TB, model list
70403	Auxiliary Latch Modification	3	5	TB, model list, P/Ns updated, tab (04) material, welding notes
	Open Forward End Modification - B206L/407 Quick			
70404	Release only	1	2	Not applicable, change at Rev. 7
70405	Lid Step Modification	2	4	TB, model list, alternate rivet, note 7
70406	Open Forward End Modification - AS350 and B206B only	1	2	Not applicable, change at Rev. 7
70407	Open Forward End Modification - EC135 only	0	0	Not applicable
70408	Installation, Hangar Wheel	0	1	TB, hardware, typo



Aero Design Ltd.

Changed Documents

CP906

Number	Title	Rev	Rev	Description of change
<b>DCL906-12</b>	(Continued)	(current approved)	(new)	
	Open Forward End Modification - B206L/407 Quick			
70411	Release only	--	0	Not applicable, added at Rev. 7
70428	Assembly, Hangar Wheel	0	1	TB, hardware, subassembly removed
70438	Parts, Hangar Wheel	0	1	TB, chamfer, hole, anodizing

# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

## APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

### BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Mounting Provisions on Robinson R44, R44 II
Certification Basis of design change and revision date:	FAR 27, Amendment 27-24
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 906.91, Rev. 2)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 90602, Rev. 1

### BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.2 (a) Manual(s)</b> (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Single Manual (ICA906.91, Rev. 2)
<b>A527.2 (b) Practical arrangement</b> (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Arranged in ATA format
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (a) Rotorcraft maintenance manual or section</b>		
<b>A527.3 (a) (1) (Introduction)</b> (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.000	Supplemental ICA ref: Section 0-1
<b>A527.3 (a) (2) (Description)</b> (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.007	Supplemental ICA ref: Section 0-5

**MSI 53 – Review of Supplemental Instructions for Continued Airworthiness**

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (a) (3) Control &amp; Operation</b> (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (a) (4) Servicing</b> (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.100	Supplemental ICA ref: N/A
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (b) Maintenance Instructions.</b>		
<b>A527.3 (b) (1) Scheduling</b> 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.101	Supplemental ICA ref: Section 5-1
<b>A527.3 (b) (2) Troubleshooting</b> (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A



### MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (b) (3) Removal/replacement</b> (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 4	Supplemental ICA ref: Section 25-1 and 25-2
<b>A527.3 (b) (4) General</b> (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.200	Supplemental ICA ref: Section 25-4
<b>A527.3 (c) Access</b> (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (d) Special inspections</b> (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-1
<b>A527.3 (e) Protective treatment</b> (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-3
<b>A527.3 (f) Fasteners, torque values, etc</b> (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.300	Supplemental ICA ref: Section 25-5
<b>A527.3 (g) Special tools</b> (g) A list of special tools needed.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 16	Supplemental ICA ref: N/A



## MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

### BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

<b>A527.4 AWL - Separate Section 1</b> The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under <a href="#">527.571</a> . If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, single page before Section 1	Supplemental ICA ref: Chapter 4
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### BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

Applicants Signature:  Date: 02 June 2014

Applicants Name: Jeff Clarke, Vice President

### BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: \_\_\_\_\_ Phone # \_\_\_\_\_ Email: \_\_\_\_\_ Mail Routing Symbol: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ NAPA Number: \_\_\_\_\_

**MSI 53 – Review of Supplemental Instructions for Continued Airworthiness**

**APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527**

**BLOCK 1**

<b>Name of the applicant for the design change approval:</b>	Aero Design Ltd.
<b>Description of the design change:</b>	Installation of Quick Release Cargo Basket Installation on Robinson R44, R44 II
<b>Certification Basis of design change and revision date:</b>	FAR 27, Amendment 27-24
<b>CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:</b>	Section 0-3 of Supplemental ICA (ICA 906.92, Rev. 2)
<b>CAR Standard 513.05 (1) (g) (iv): Installation Instructions:</b>	Installation Drawing 90601, Rev. 1

**BLOCK 2**

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.2 (a) Manual(s)</b> (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Single Manual (ICA906.92, Rev. 2)
<b>A527.2 (b) Practical arrangement</b> (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Arranged in ATA format
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (a) Rotorcraft maintenance manual or section</b>		
<b>A527.3 (a) (1) (Introduction)</b> (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.000	Supplemental ICA ref: Section 0-1
<b>A527.3 (a) (2) (Description)</b> (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.007	Supplemental ICA ref: Section 0-5



# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (a) (3) Control &amp; Operation</b> (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (a) (4) Servicing</b> (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.100	Supplemental ICA ref: N/A
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (b) Maintenance Instructions.</b>		
<b>A527.3 (b) (1) Scheduling</b> 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.101	Supplemental ICA ref: Section 5-1
<b>A527.3 (b) (2) Troubleshooting</b> (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

**MSI 53 – Review of Supplemental Instructions for Continued Airworthiness**

<b>Regulatory Standard Reference Column 1</b>	<b>Design Approval Holder (DAH) ICA Reference Column 2</b>	<b>Applicant Means of Compliance Supplemental ICA Requirements Column 3</b>
<b>A527.3 (b) (3) Removal/replacement</b> (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 4	Supplemental ICA ref: Section 25-1 thru 25-6
<b>A527.3 (b) (4) General</b> (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.200	Supplemental ICA ref: Section 25-7
<b>A527.3 (c) Access</b> (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (d) Special inspections</b> (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-1
<b>A527.3 (e) Protective treatment</b> (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-3
<b>A527.3 (f) Fasteners, torque values, etc</b> (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.300	Supplemental ICA ref: Section 25-8
<b>A527.3 (g) Special tools</b> (g) A list of special tools needed.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 16	Supplemental ICA ref: N/A



## MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

### BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

#### A527.4 AWL - Separate Section 1

The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."

ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, single page before Section 1

Supplemental ICA ref: Chapter 4

### BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

Applicants Signature:  Date: 02 June 2014

Applicants Name: Jeff Clarke, Vice President

### BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: \_\_\_\_\_ Phone # \_\_\_\_\_ Email: \_\_\_\_\_ Mail Routing Symbol: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ NAPA Number: \_\_\_\_\_



Transport  
Canada

Transports  
Canada

1100-9700 Jasper Avenue  
Edmonton, Alberta T5J 4E6

Your file      Votre référence

August 09, 2011

Our file      Notre référence

C-10-1034  
SH10-48

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada, T2E 6R7

Dear Sirs:

<b>SUBJECT:</b>	<b>Approval of</b>	<b>Installation of Quick Release Mounting</b>
		<b>Provisions and Quick Release Cargo Basket</b>
	<b>FAA STC:</b>	<b>SR02991NY</b>
	<b>Aircraft:</b>	<b>ROBINSON R44, R44 II</b>
	<b>FAA STC Holder:</b>	<b>Aero Design Ltd.</b>

Enclosed is the original FAA Supplemental Type Certificate SR02991NY and information concerning your responsibility as a holder of a Supplemental Type Certificate issued to a Canadian Applicant.

FAA STC SR02991NY is based on Issue 1 of Canadian STC SH10-48.

Yours truly,

J. Staal  
Aircraft Certification Engineering Technologist  
Prairie and Northern Region  
Phone: 780-495-5227  
Facs: 780-495-7963

Encl.

United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

IMPORT

*Number* SR02991NY

*This certificate issued to* Aero Design Ltd.  
2013-39<sup>th</sup> Avenue NE  
Calgary, Alberta, T2E 6R7  
Canada

*certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations.*

*Original Product -- Type Certificate Number:* H11NM

*Make:* Robinson

*Model:* R44, R44II

*Description of Type Design Change:*

The installation of Quick Release Mounting Provisions and Quick Release Cargo Basket.

1. **Configuration A-Quick Release Mounting Provisions:** Installation of Quick Release Mounting Provisions to be done in accordance with Transport Canada approved Aero Design Ltd. Document Control List, DCL 906-1, Revision 0 dated September 23, 2010, or later Transport Canada approved revision.
2. **Configuration B-External Cargo Basket:** Installation of Configuration A, Quick Release Mounting Provisions is a prerequisite for the installation of Configuration B, External Cargo Basket. Installation of Quick Release Cargo basket to be done in accordance with Transport Canada approved, Aero Design Ltd. Document Control List, DCL 906-2, Revision 0 dated September 23, 2010, or later Transport Canada approved revision.

*Limitations and Conditions:*

1. **Configuration A- Quick Release Mounting Provisions:**
  - a. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 906.91, Revision 1 dated June 30, 2011, Transport Canada accepted June 29, 2011, or later Transport Canada accepted revisions are required for this installation.
  - b. Quick Release Mounting Provisions installed in accordance with DCL906-1 may remain installed if a cargo basket configuration is removed. Mounting beams may be removed leaving attachment fittings in place on the landing gear.

(Limitations and Conditions continued on page 2 of 2)

*This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.*

*Date of application:* November 30, 2010

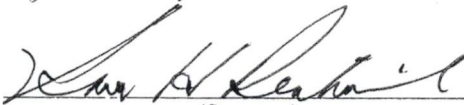
*Date reissued:*

*Date of issuance:* June 30, 2011

*Date amended:*



*By direction of the Administrator*

  
(Signature)

Anthony Socias  
Manager  
New York Aircraft Certification Office

(Title)



United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

(Continuation Sheet)

*Number* SR02991NY

Date of Issue: June 30, 2011

*Limitations and Conditions* (Continued).

2. **Configuration B-External Cargo Basket:**

- a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 906.90, Revision 0 dated September 22, 2010, or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 906.92, Revision 1 dated June 20, 2011, Transport Canada accepted June 29, 2011 or later Transport Canada accepted revisions are required for this installation.

3. **Cargo Basket Modifications:**

Modifications to the Cargo Basket configurations eligible in accordance with Transport Canada approved, Aero Design Ltd. Document Control list DCL704, Revision 6 dated April 29, 2010, or later approved revision. Eligibility limitations are noted on the drawings.

4. The Installer must determine whether this design change is compatible with previously approved modifications.
5. If the holder agrees to permit another person to use the certificate to alter a product, the holder must give the other person written evidence of that permission.

-----END-----



NEW ENGLAND REGION  
NEW YORK AIRCRAFT CERTIFICATION OFFICE  
1600 STEWART AVENUE, SUITE 410  
WESTBURY, NEW YORK 11590

**INFORMATION CONCERNING YOUR RESPONSIBILITY AS HOLDER OF A  
SUPPLEMENTAL TYPE CERTIFICATE ISSUED TO A CANADIAN APPLICANT**

This STC is official indications of FAA approval of your installation and may be used to authorize identical installation on other aircraft of the same model, subject to the limitation noted in the STC. It may be transferred, or otherwise made available to another party by means of a licensee arrangement; however, you are requested to advise this office when you transfer or grant licensee rights to the STC in order that we may take the necessary recording or reissuance action.

If you plan to manufacture and sell parts for installation on type certificated aircraft, please review FAR 21.502, which is applicable to parts imported into the U.S.

A copy of the STC and required documents should accompany each kit and installation. Also, your attention is directed to the limitations and conditions specified in the STC.

As recipient of this approval, except as provided in FAR21.3(d), you are required to report any failure, malfunction, or defect in any product or part manufactured by you that you have determined has resulted or could result in any of the occurrences listed in FAR 21.3(c).

The report should be communicated initially by telephone and subsequently in writing to the Manager, New York Aircraft Certification Office, telephone (516) 228-7300, mailing address: 1600 Stewart Avenue, Suite 410, Westbury, New York 11590. This first contact should take place within 24 hours after it has been determined that the failure required to be reported has occurred.

FAA Form 8010-4, Malfunction or Defect Report, or any other appropriate format is acceptable in transmitting the required details.



Anthony Socias  
Manager,  
New York Aircraft Certification Office



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Engine & Propeller Directorate

New York Aircraft Certification Office  
1600 Stewart Avenue  
4th Floor, Suite 410  
Westbury, NY 11590  
(516) 228-7300, Fax: (516) 794-5531

JUL 07 2011

Mr. J. Staal  
Aircraft Certification Engineering Technologist  
Transport Canada, Prairie and Northern Region (RAED)  
1100-9700 Jasper Avenue  
Edmonton, Alberta T5J 4E6  
Canada

Subject: Issuance of Supplemental Type Certificate (STC) SR02991NY

Dear Mr. Staal:

This is in reference to your request dated December 3, 2010 (TCCA File Ref. C-10-1034) requesting the issuance of a Supplemental Type Certificate (STC) under terms of the US/Canada Bilateral Aviation Safety Agreement (BASA) for the Installation of Cargo Basket and Quick Release Mounting Provisions to AERO Design Ltd on Robinson R44 and R44II model aircraft. The corresponding FAA Project Number is ST6876NY-R (TCCA STC SH10-48, Issue No.1, approved October 21, 2010; issued October 21, 2010).

We have reviewed the information submitted by your office. in accordance with the current US/Canada Bilateral Aviation Safety Agreement, we have enclosed STC SR02991NY, issued June 30, 2011.

In accordance with the US/Canada bilateral relationship using TCCA compliance to the maximum extent, this STC includes references to documents that include the words "or later TCCA approved/accepted revisions". It is expected that as State of Design responsible for the STC, TCCA will coordinate any major/significant changes, as deemed appropriate, with the FAA prior to TCCA approval/acceptance.

Please forward the enclosed STC and a copy of "Information Concerning Your Responsibility as a Holder of a Supplemental Type Certificate Issued to a Canadian Applicant" to Aero Design Ltd. A copy of the STC and required documents should accompany each installation. Also, your attention is directed to the limitations and conditions specified in the STC.

If you have any questions relating to the above information, please contact Mr. Stephen Kowalski at 1-516-228-7327.

Sincerely,

Anthony Socias  
Manager, New York Aircraft Certification Office

Enclosures

United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

IMPORT

*Number* SR02991NY

*This certificate issued to* Aero Design Ltd.  
2013-39<sup>th</sup> Avenue NE  
Calgary, Alberta, T2E 6R7  
Canada

*certifies that the change in the type design for the following product with the limitations and conditions therefor as specified herein meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations.*

*Original Product -- Type Certificate Number:* H11NM

*Make:* Robinson

*Model:* R44, R44II

*Description of Type Design Change:*

The installation of Quick Release Mounting Provisions and Quick Release Cargo Basket.

1. **Configuration A-Quick Release Mounting Provisions:** Installation of Quick Release Mounting Provisions to be done in accordance with Transport Canada approved Aero Design Ltd. Document Control List, DCL 906-1, Revision 0 dated September 23, 2010, or later Transport Canada approved revision.
2. **Configuration B-External Cargo Basket:** Installation of Configuration A, Quick Release Mounting Provisions is a prerequisite for the installation of Configuration B, External Cargo Basket. Installation of Quick Release Cargo basket to be done in accordance with Transport Canada approved, Aero Design Ltd. Document Control List, DCL 906-2, Revision 0 dated September 23, 2010, or later Transport Canada approved revision.

*Limitations and Conditions:*

1. **Configuration A- Quick Release Mounting Provisions:**
  - a. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 906.91, Revision 1 dated June 30, 2011, Transport Canada accepted June 29, 2011, or later Transport Canada accepted revisions are required for this installation.
  - b. Quick Release Mounting Provisions installed in accordance with DCL906-1 may remain installed if a cargo basket configuration is removed. Mounting beams may be removed leaving attachment fittings in place on the landing gear.

(Limitations and Conditions continued on page 2 of 2)

*This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.*

*Date of application:* November 30, 2010

*Date reissued:*

*Date of issuance:* June 30, 2011

*Date amended:*



*By direction of the Administrator*

*[Signature]*  
(Signature)

Anthony Socias  
Manager  
New York Aircraft Certification Office

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.



United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

(Continuation Sheet)

*Number* SR02991NY

Date of Issue: June 30, 2011

*Limitations and Conditions* (Continued):

2. **Configuration B-External Cargo Basket:**

- a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 906.90, Revision 0 dated September 22, 2010, or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 906.92, Revision 1 dated June 20, 2011, Transport Canada accepted June 29, 2011 or later Transport Canada accepted revisions are required for this installation.

3. **Cargo Basket Modifications:**

Modifications to the Cargo Basket configurations eligible in accordance with Transport Canada approved, Aero Design Ltd. Document Control list DCL704, Revision 6 dated April 29, 2010, or later approved revision. Eligibility limitations are noted on the drawings.

4. The Installer must determine whether this design change is compatible with previously approved modifications.
5. If the holder agrees to permit another person to use the certificate to alter a product, the holder must give the other person written evidence of that permission.

-----END-----



NEW ENGLAND REGION  
NEW YORK AIRCRAFT CERTIFICATION OFFICE  
1600 STEWART AVENUE, SUITE 410  
WESTBURY, NEW YORK 11590

INFORMATION CONCERNING YOUR RESPONSIBILITY AS HOLDER OF A  
SUPPLEMENTAL TYPE CERTIFICATE ISSUED TO A CANADIAN APPLICANT

This STC is official indications of FAA approval of your installation and may be used to authorize identical installation on other aircraft of the same model, subject to the limitation noted in the STC. It may be transferred, or otherwise made available to another party by means of a licensee arrangement; however, you are requested to advise this office when you transfer or grant licensee rights to the STC in order that we may take the necessary recording or reissuance action.

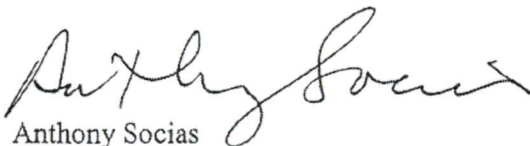
If you plan to manufacture and sell parts for installation on type certificated aircraft, please review FAR 21.502, which is applicable to parts imported into the U.S.

A copy of the STC and required documents should accompany each kit and installation. Also, your attention is directed to the limitations and conditions specified in the STC.

As recipient of this approval, except as provided in FAR21.3(d), you are required to report any failure, malfunction, or defect in any product or part manufactured by you that you have determined has resulted or could result in any of the occurrences listed in FAR 21.3(c).

The report should be communicated initially by telephone and subsequently in writing to the Manager, New York Aircraft Certification Office, telephone (516) 228-7300, mailing address: 1600 Stewart Avenue, Suite 410, Westbury, New York 11590. This first contact should take place within 24 hours after it has been determined that the failure required to be reported has occurred.

FAA Form 8010-4, Malfunction or Defect Report, or any other appropriate format is acceptable in transmitting the required details.



Anthony Socias  
Manager,  
New York Aircraft Certification Office

# MODIFICATION APPROVAL REQUEST APPLICATION FORM

MOD906, Rev. 1

<b>1. NAME AND ADDRESS OF APPLICANT:</b> AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		<b>2. IDENTIFICATION OF PRODUCT</b> <span style="float: right; color: blue;">C-10-1034</span> <table style="width: 100%;"> <tr> <td style="width: 33%;">MAKE:</td> <td style="width: 33%;">Robinson</td> <td style="width: 34%;">MODEL:</td> <td style="width: 34%;">R44, R44 II</td> </tr> <tr> <td>SERIAL No.:</td> <td>All eligible</td> <td>REGISTRATION:</td> <td>All Eligible</td> </tr> </table>			MAKE:	Robinson	MODEL:	R44, R44 II	SERIAL No.:	All eligible	REGISTRATION:	All Eligible																			
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SERIAL No.:	All eligible	REGISTRATION:	All Eligible																												
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<b>3. REQUEST FOR:</b> <table style="width: 100%;"> <tr> <td style="width: 45%;">A. SUPPLEMENTAL TYPE CERTIFICATE (STC)</td> <td style="width: 5%; text-align: center;"><input type="checkbox"/></td> <td style="width: 50%;"></td> </tr> <tr> <td>B. STC/STA REVISION</td> <td style="text-align: center;"><input type="checkbox"/></td> <td>STC/STA No.</td> </tr> <tr> <td>C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> </tr> <tr> <td>D. LIMITED STC/STA REVISION</td> <td style="text-align: center;"><input type="checkbox"/></td> <td>LSTC/LSTA No.</td> </tr> <tr> <td>E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="color: blue;">C-10-1034</td> </tr> <tr> <td>F. F.A.A. STC REVISION</td> <td style="text-align: center;"><input type="checkbox"/></td> <td>STC No.</td> </tr> <tr> <td>G. FAMILIARIZATION OF F.A.A. STC</td> <td style="text-align: center;"><input type="checkbox"/></td> <td>STC No.</td> </tr> <tr> <td>H. REPAIR DESIGN APPROVAL (RDC)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> </tr> <tr> <td>I. PARTS DESIGN APPROVAL (PDA)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> </tr> </table>					A. SUPPLEMENTAL TYPE CERTIFICATE (STC)	<input type="checkbox"/>		B. STC/STA REVISION	<input type="checkbox"/>	STC/STA No.	C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)	<input type="checkbox"/>		D. LIMITED STC/STA REVISION	<input type="checkbox"/>	LSTC/LSTA No.	E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE	<input checked="" type="checkbox"/>	C-10-1034	F. F.A.A. STC REVISION	<input type="checkbox"/>	STC No.	G. FAMILIARIZATION OF F.A.A. STC	<input type="checkbox"/>	STC No.	H. REPAIR DESIGN APPROVAL (RDC)	<input type="checkbox"/>		I. PARTS DESIGN APPROVAL (PDA)	<input type="checkbox"/>	
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B. STC/STA REVISION	<input type="checkbox"/>	STC/STA No.																													
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F. F.A.A. STC REVISION	<input type="checkbox"/>	STC No.																													
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H. REPAIR DESIGN APPROVAL (RDC)	<input type="checkbox"/>																														
I. PARTS DESIGN APPROVAL (PDA)	<input type="checkbox"/>																														
<b>4. TITLE OF MODIFICATION OR REPAIR:</b> Quick Release Mounting Provisions Installation; Quick Release Cargo Basket Installation																															
<b>5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR:</b> Installation of provision on the helicopter to allow equipment such as cargo baskets to be quickly installed or removed without using tools. Installation of a cargo basket on the mounting provisions.																															
<b>6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:</b> A. TA NO. H-97      B. TC No.      C. OTHER																															
<b>7. PROPOSED BASIS OF APPROVAL:</b> A. SAME AS TA <input checked="" type="checkbox"/> B. SAME AS TC <input type="checkbox"/> C. OTHER <input type="checkbox"/> (Please specify)																															
<b>8. DOCUMENTATION CHECKLIST</b>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">REQUIRED</th> <th colspan="3" style="text-align: center;">FOR DOT USE ONLY</th> </tr> <tr> <th colspan="2"></th> <th colspan="3" style="text-align: center;">RECEIVED</th> </tr> <tr> <th style="width: 50%; text-align: center;">YES</th> <th style="width: 50%; text-align: center;">NO</th> <th style="width: 20%; text-align: center;">YES</th> <th style="width: 20%; text-align: center;">NO</th> <th style="width: 30%; text-align: center;">DATE</th> </tr> </table>		REQUIRED		FOR DOT USE ONLY					RECEIVED			YES	NO	YES	NO	DATE													
REQUIRED		FOR DOT USE ONLY																													
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YES	NO	YES	NO	DATE																											

**AERO DESIGN LTD.**

2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027

Fax: 403-250-8333

www.aerodesign.ca

20 June, 2011

U.S. Department of Transportation  
Federal Aviation Administration  
NYACO  
1600 Stewart Avenue, Suite 410  
Westbury, NY  
11590

Attention: Steve Kowalski

Re: ST6876NY-R – Robinson R44 Cargo Basket Installation

Mr. Kowalski,

Please find attached revised ICA906.91 and ICA906.92 to address the concerns noted in letters dated 17 June 2011 from Mr. Antonio Estrada at the Fort Worth Aircraft Evaluation Group. Details of the changes and explanations are listed below:

## ICA906.91:

No.	Page	Section	Finding	Correction/Explanation
1	4	0-4	The statement, "This installation is NOT compatible with fixed or pop-out float installations", should be a caution or warning.	CAUTION has been added for the compatibility note.
2	6	5-1	Para. 1 a & b contains the word "situ". Not sure what this word is supposed to be?	"In Situ" definition: in the natural or original position or place (Merriam-Webster dictionary). The part is not required to be removed for the inspection.
3	9	25-2	Figure description states (Close Side) Need proper nomenclature. (aft, forward, left, right)	Right/left changes depending on which side the cargo basket will be installed on. Figures 25.1, 25.2 and 25.3 all show right side installation.
4	10	25-2	Figure description states (Far Side) Need proper nomenclature. (aft, forward, left, right)	The figures both state the view is the same forward and aft, right side is shown, left side is opposite.  Definition has been added to section 0-2 to clarify.



**AERO DESIGN LTD.**

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ICA906.92:

No.	Page	Section	Finding	Correction/Explanation
1	7	5-1	Para 1-b need corrective action if lid does not latch.	Added corrective action to inspection; inserted replacement procedure in section 25-3
2	7	5-2	No damage limitations or repair procedures listed.	Damage limitations added, repair procedures amended
3			Missing information concerning how the basket is secured and troubleshooting information if basket does not secure to provision.	Added step to check that basket is secured to section 25-2; added replacement requirement to inspection in section 5-1 if stop does not secure basket; inserted replacement procedure for stop pin in section 25-4

Please advise if you have any further questions or concerns.

Regards,

Jeff Clarke

Encl.





U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Southwest Region  
Arkansas, Louisiana,  
New Mexico, Oklahoma,  
Texas

Fort Worth Aircraft Evaluation Group  
Flight Standards District Office  
2601 Meacham Blvd.  
Fort Worth, Texas 76193-0270  
817-222-5270, Fax: 817-222-5295

*\*\*\*Electronic Notification\*\*\**

June 17, 2011

Steve Kowalski  
FAA New York ACO-170

Dear Mr. Kowalski,

This is to notify you that the following Instructions for Continued Airworthiness (ICA) do not meet the requirements for acceptance. The below listed Review Findings require corrective action and resubmission to complete the review process:

Applicant	Aero Design Ltd.
Document Number	ICA 906.92
Model Aircraft	R44
Project Number	ST6876NY-R
FTW AEG File No.	ST6876NY-R

No.	Chapter	Page	Section	Item	FAR	Finding
1		7	5-1	Inspection Schedule	A27.3	Para 1-b need corrective action if lid does not latch.
2		7	5-2	Damage Limits/Repair Instructions	A27.3	No damage limitations or repair procedures listed.
3					A27.3	Missing information concerning how the basket is secured and troubleshooting information if basket does not secure to provision.

If this office has not received a reply within 90 days of the date of this letter, this project will be considered closed and the ICA documents will be returned to the applicable Aircraft Certification Office.

Please direct any questions concerning this project to the following inspector:

Inspector Name	Antonio Estrada
Telephone Number	817-222-5268

Sincerely,

Antonio Estrada  
Fort Worth Aircraft Evaluation Group

**Customer Feedback Form**

In our continuing effort to improve the quality of service to our customers, Flight Standards Service would appreciate any comments you may have on our services and how to improve them. Your participation in meeting our goals for continuous improvement is greatly appreciated. Feedback form is located at:  
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No.	Chapter	Page	Section	Item	FAR	Finding
1		4	0-4	Compatibility	A27.3	The statement, "This installation is NOT compatible with fixed or pop-out float installations", should be a caution or warning.
2		6	5-1	Insp Schedule	A27.3	Para. 1 a & b contains the word "situ". Not sure what this word is supposed to be?
3		9	25-2	Fig 25-2 Clamp Assy Installation	A27.3	Figure description states (Close Side) Need proper nomenclature. (aft, forward, left, right)
4		10	25-2	Fig 25-3 Clamp Assy Installation	A27.3	Figure description states (Far Side) Need proper nomenclature. (aft, forward, left, right)

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## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 906.91

---

### QUICK RELEASE MOUNTING PROVISIONS

### ROBINSON R44, R44 II

#### Preface

These Instructions for Continued Airworthiness shall be included in the Robinson R44 Maintenance Manual when the External Attachment Provisions are installed in accordance with AERO Design Ltd. Document Control List DCL906-1, Revision 0, or later approved revision.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 1  
Date: 20 June 2011

---

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## RECORD OF REVISIONS

[illegible]

## LIST OF EFFECTIVE PAGES

## List of Revisions

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22 September 2010

Revision 1

20 June 2011

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## CHAPTER 0 – INTRODUCTION

### 0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for the Robinson R44 Series embodying the External Attachment Provisions as described herein.

### 0-2 DEFINITIONS AND ABBREVIATIONS

ICA -	Instructions for Continued Airworthiness
LH -	Left Hand
RH -	Right Hand
Close Side-	Side closest to cargo basket or equipment installation
Far side -	Side opposite to cargo basket or equipment installation

### 0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the External Attachment Provisions. Requests for a copy may be made in writing to:

AERO Design Ltd.  
2013 39<sup>th</sup> Avenue N.E.  
Calgary, Alberta  
T2E 6R7  
Fax: 403-250-8333  
Email: [info@aerodesign.ca](mailto:info@aerodesign.ca)

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

### 0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

**CAUTION :** This installation is NOT compatible with fixed or pop-out float installations.

### 0-5 GENERAL DESCRIPTION

Quick Release Mounting Provisions are a pair of beams mounted to fittings attached to the cross tube elbows under the helicopter. The Quick Release Mounting Provisions allow the installation of various equipment, such as cargo baskets.

The fittings are aluminum clamps with a mounting point for the beam. The clamp arrangement allows for variability in the cross tube elbows, and allows the cross tube to flex without stiffening due to the beam.

The beams are steel tubing which stick out from the side of the helicopter, and have a vertical tube with keyways in the outboard face to mount various pieces of equipment such as cargo baskets and flight steps. The quick release mechanism is built into the down tube.



## CHAPTER 4 – AIRWORTHINESS LIMITATIONS

### *Transport Canada*

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

### *FAA*

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Mounting Provisions.

## CHAPTER 5 – INSPECTION REQUIREMENTS

### 5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the Robinson R44 Series Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of the Quick Release Mounting Provisions.

#### *100 Hour or Annual Inspection*

1. Inspection Area: Landing Gear Cross Tube Elbows
  - a) Visually inspect attachment clamp fittings in situ for cracks, corrosion or other damage.
  - b) Visually inspect hardware securing attachment fittings to cross tube elbows in situ for security and damage.
2. Inspection Area: Beams
  - a) Visually inspect beams for cracks, corrosion or other damage.
  - b) Visually inspect bolts attaching beams to external attachment provisions for security and damage.
  - c) Inspect rubber hose at clamp fitting for condition.

#### *Special Inspections*

Following a hard landing inspect the Quick Release Mounting Provisions installation in accordance with the 100 hour or annual inspection listed above.

### 5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

#### 1. Attachment Fittings

DO NOT REPAIR DAMAGE TO FITTINGS IF BEYOND THE LIMITS BELOW.

- a) Nicks and/or gouges on any surface up to 0.030" deep and 0.125" wide may be dressed out to a smooth contour. Touch up paint as required.
- b) Cracking on any surface is unacceptable.
- c) Do not repair elongation of provision bolt hole (AN6 bolt). Hole is nominally 0.386" (V drill) in diameter.
- d) Touch up with polyurethane paint as required following repairs.

#### 2. Beams

DO NOT REPAIR DAMAGE TO BEAMS IF BEYOND THE LIMITS BELOW.

- a) Nicks and/or gouges on any face up to 0.015" deep and 0.125" wide may be dressed out to a smooth contour.

- b) Critical keyway dimensions on the aft beam are shown in Figure 5.1. The forward beam does not have a critical dimension. Attempt to insert 15/32 drill shank into bottom end of slots. If drill can be inserted, slot is worn beyond limit.

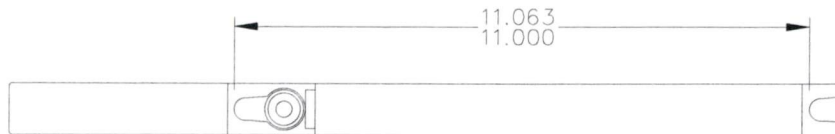


Figure 5.1 – Critical Keyway Dimensions (Aft Beam)

- c) Touch up with polyurethane paint as required following repairs.
- d) Rubber hose on attachment end of beams shall be replaced if it shows signs of cracking, hardening, or other deterioration. Replace with  $\frac{3}{4}$ " ID commercial heater hose, 1" long.

### 5-3 PROTECTIVE TREATMENT INFORMATION

#### 1. Attachment Fittings

The Attachment Fittings are supplied painted white. If the paint is damaged, touch up with polyurethane paint.

#### 2. Beams

The Beams are supplied powder coated white. If the powder coating is damaged, touch up with polyurethane paint.

## CHAPTER 25 – EQUIPMENT AND FURNISHINGS

### 25-1 QUICK RELEASE MOUNTING PROVISIONS REMOVAL

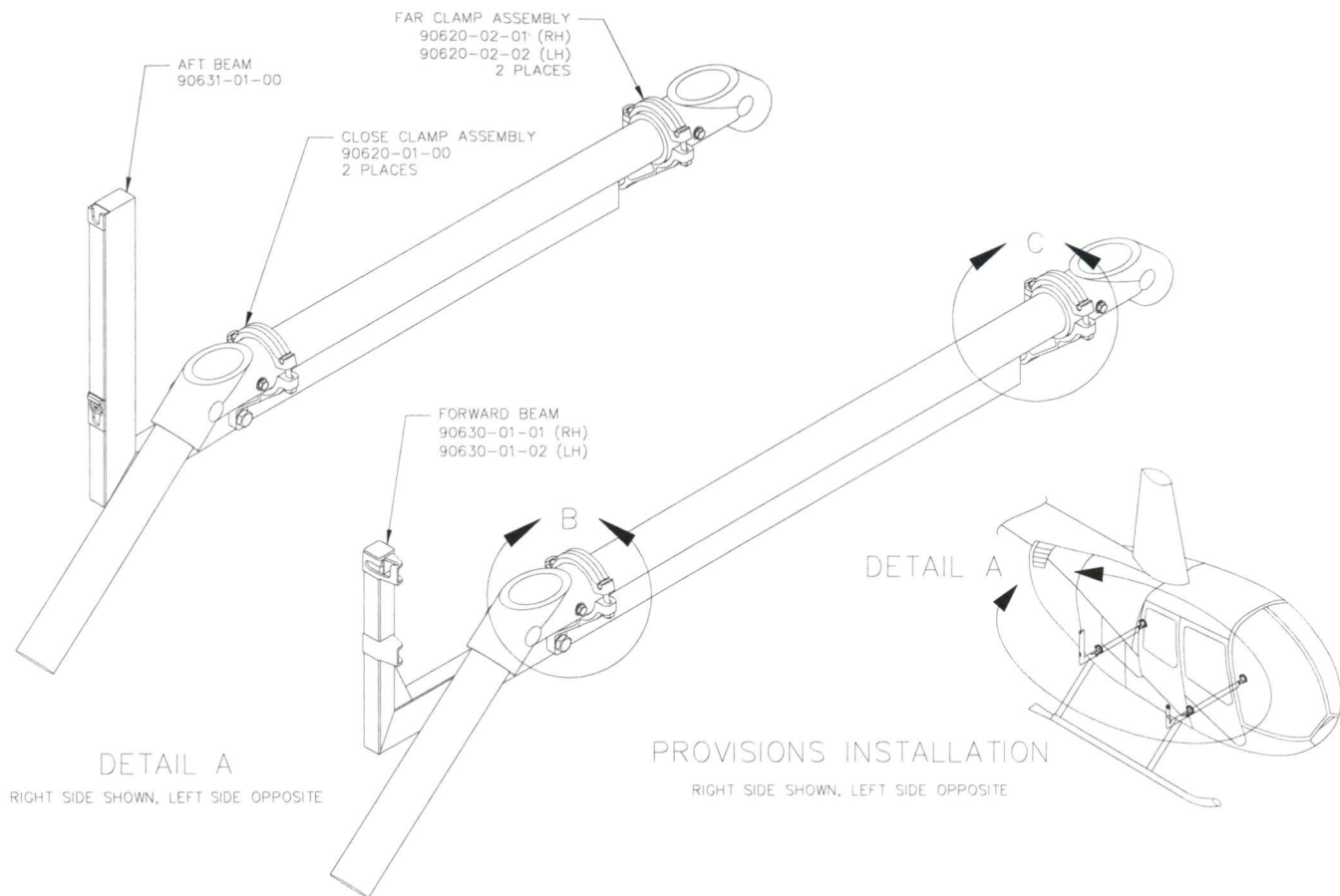


Figure 25.1 – Quick Release Mounting Provisions

1. Remove AN6-21A Bolt, AN960-616 Washers and MS21044N6 Nut attaching Forward Beam (90630-01-01 RH or -02 LH) to Close Clamp Assembly. Remove Forward Beam by pulling out of Far Clamp Assembly. Ensure Rubber Hose remains on Forward Beam.
2. Remove AN6-21A Bolt, AN960-616 Washers and MS21044N6 Nut attaching Aft Beam (90631-01-00) to Close Clamp Assembly. Remove Aft Beam by pulling out of Far Clamp Assembly. Ensure Rubber Hose remains on Aft Beam.
3. Loosen BH00182A4 Self Aligning Nut on T-Bolt on Clamp Assembly. Clamp Assembly may be moved off elbow to centre section of cross tube for easier access.
4. Remove MS21042L4 Nut, and AN960-416 Washer from AN4 bolt on Clamp Assembly.
5. Remove Clamp Assembly from cross tube.



6. Repeat steps 3 - 5 for remaining Clamp Assemblies.
7. Forward Cross Tube Cover (C475-5) and Strut Fairings (C082-XX) may be installed in accordance with the Robinson R44 Maintenance Manual.

## 25-2 QUICK RELEASE MOUNTING PROVISIONS INSTALLATION

Refer to Figure 25.1.

1. Remove Strut Fairings (C082-XX) on the side of the helicopter that the equipment (cargo basket, etc.) will be installed on. Refer to R44 Maintenance Manual, Section 5.410.
2. Remove Forward Cross Tube Cover (C475-5). Leave Channels (C388-3) in place.
3. Remove MS21042L4 Nut and AN960-416 Washer from AN4-12A Bolt on Close Clamp Assembly (90620-01-00). Loosen BH00182A4 Self-Aligning Nut on FT4F-175H T-Bolt if required. Locate Clamp Assembly on forward cross tube elbow, with beam mounting lug on aft side, approximately 0.25" from inboard edge. Install AN960-416 Washer and MS21042L4 Nut on AN4-12A Bolt. Tighten nuts enough to prevent the clamp from slipping on the elbow. Repeat for aft cross tube. See Figure 25.2.

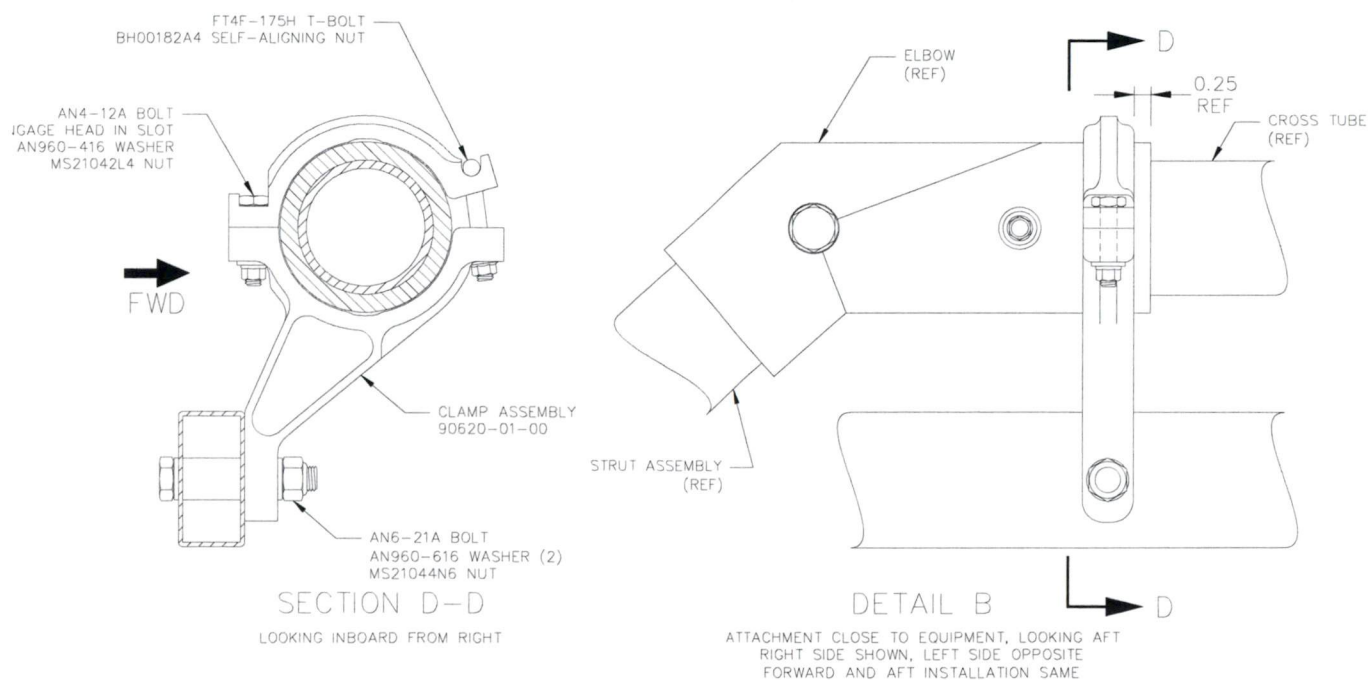


Figure 25.2 – Clamp Assembly Installation (Close Side)

4. Remove MS21042L4 Nut and AN960-416 Washer from AN4-12A Bolt on Far Clamp Assembly (90620-02-01 RH or -02 LH). Loosen BH00182A4 Self-Aligning Nut on FT4F-175H T-Bolt if required. Locate Clamp Assembly on forward cross tube elbow with beam mounting lug on aft side, approximately 0.25" from inboard edge. Install AN960-416 Washer and MS21042L4 Nut on

AN4-12A Bolt. Tighten nuts enough to prevent the clamp from slipping on the elbow. Repeat for remaining aft cross tube. See Figure 25.3

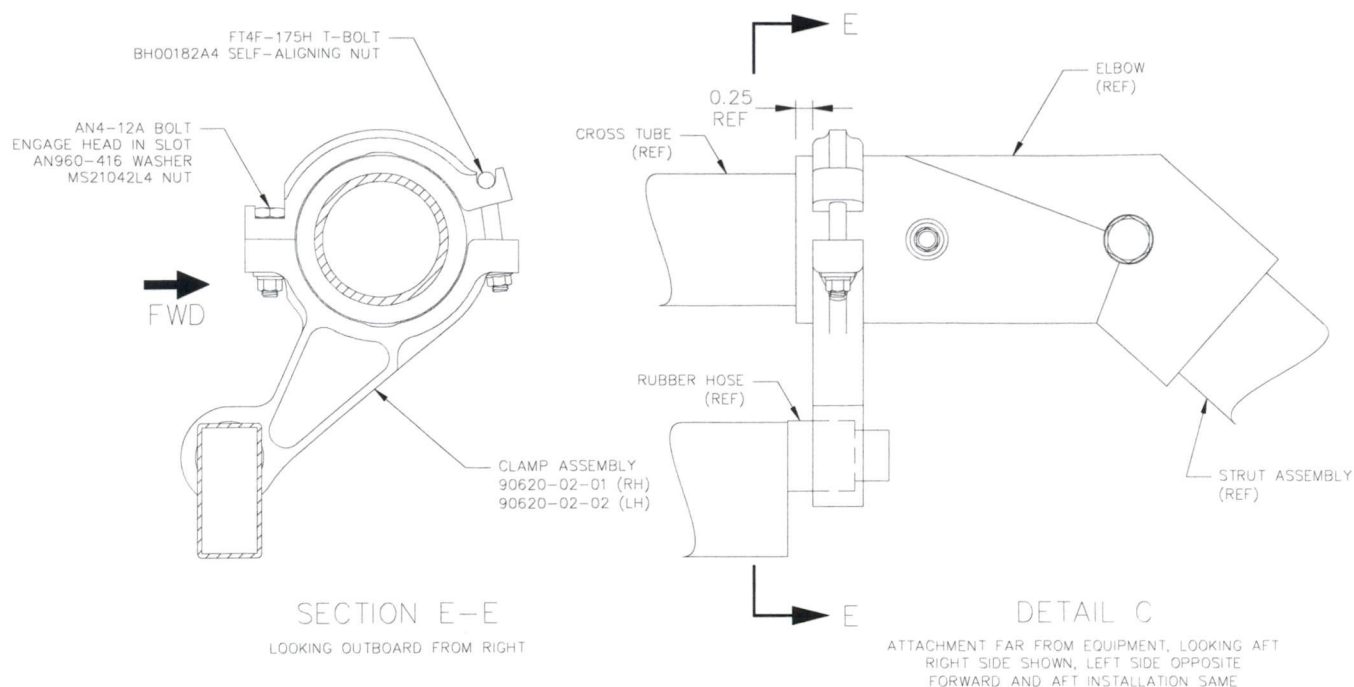


Figure 25.3 – Clamp Assembly Installation (Far Side)

5. Remove Rubber Hose from Forward and Aft Beams and insert into Far Clamp Assemblies.
6. Slide pin on far end of Forward Beam Assembly (90630-01-01 RH, -02 LH) into rubber hose in Far Clamp Assembly on forward cross tube. Rubber hose may be lubricated with soap and water if required. Insert AN6-21A Bolt with AN960-616 Washer through bushing in Forward Beam into hole in Close Clamp Assembly. Shift clamps inboard or outboard as required, maintain approximately equal distance from clamp to edge of elbow. Install AN960-616 Washer and MS21044N6 Nut on bolt. Torque AN6 bolt to 160-190 in-lbs.
7. Slide pin on far end of Aft Beam Assembly (90631-01-00) into rubber hose in Far Clamp Assembly on aft cross tube. Rubber hose may be lubricated with soap and water if required. Insert AN6-21A Bolt with AN960-616 Washer through bushing in Aft Beam into hole in Close Clamp Assembly. Install AN960-616 Washer and MS21044N6 Nut on bolt. Torque AN6 bolt to 160-190 in-lbs.
8. Adjust beams as to be parallel to cross tubes with a 1" gap between the beam and cross tube. Rotate the far clamp only to adjust for parallel, then rotate both clamps together to attain 1" gap. Loosen clamps as required, re-tighten after.
9. Torque bolts on Clamp Assemblies to 50-70 in-lbs.

## 25-3 BILL OF MATERIALS

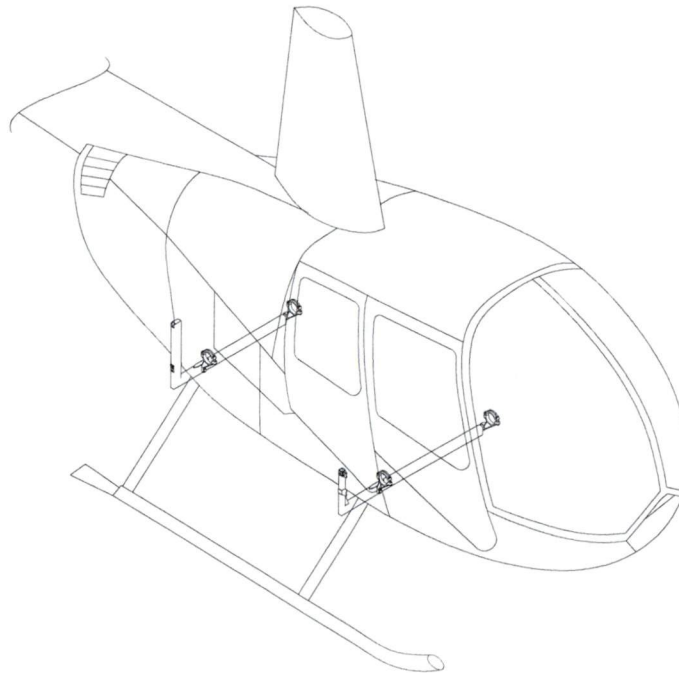
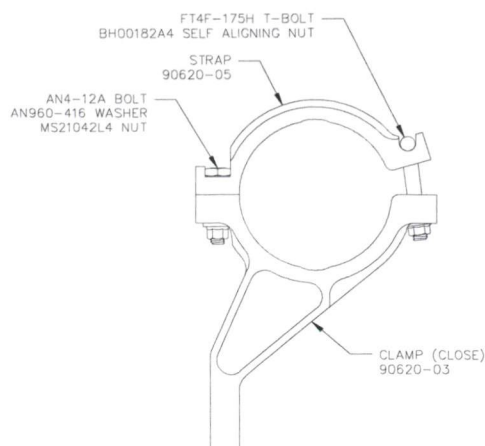
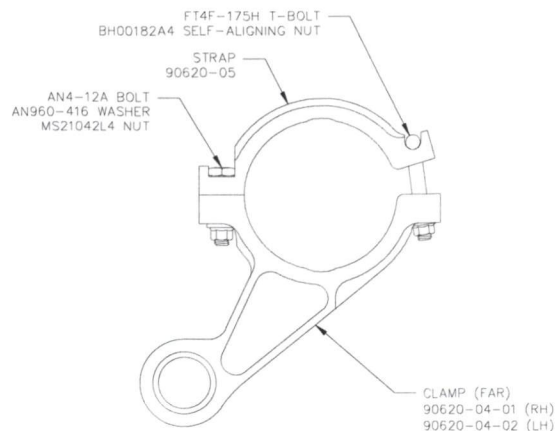


Figure 25.4 – Attachment Provisions Installation

Qty.	Part Number	Description
1	90602-01-01	Attachment Provisions Installation – RH
1	90602-01-02	Attachment Provisions Installation – LH
. 2	90620-01-00	Clamp Assembly (Close)
. 2	90620-02-01	Clamp Assembly (Far, RH)
. 2	90620-02-02	Clamp Assembly (Far, LH)
. 1	90630-01-01	Forward Beam Assembly (RH)
. 1	90630-01-02	Forward Beam Assembly (LH)
. 1	90631-01-00	Aft Beam Assembly
. 2	AN6-21A	Bolt
. 2	AN960-616	Washer
. 2	MS21044N6	Nut



90620-01-00 CLAMP ASSEMBLY  
(CLOSE)



90620-02-XX CLAMP ASSEMBLY  
(FAR)

Figure 25.5 – Clamp Assemblies

Qty.	Part Number	Description
<b>2</b>	<b>90620-01-00</b>	<b>Clamp Assembly (Close)</b>
. 1	90620-03	Clamp (Close)
. 1	90620-05	Strap
. 1	AN4-12A	Bolt
. 1	AN960-416	Washer
. 1	MS21042L4	Nut
. 1	FT4F-175H	T-Bolt
. 1	BH00182A4	Self-Aligning Nut
<b>2</b>	<b>90620-02-01</b>	<b>Clamp Assembly (Far, RH)</b>
. 1	90620-04-01	Clamp (Far, RH)
. 1	90620-05	Strap
. 1	AN4-12A	Bolt
. 1	AN960-416	Washer
. 1	MS21042L4	Nut
. 1	FT4F-175H	T-Bolt
. 1	BH00182A4	Self-Aligning Nut
<b>2</b>	<b>90620-02-02</b>	<b>Clamp Assembly (Far, LH)</b>
. 1	90620-04-02	Clamp (Far, LH)
. 1	90620-05	Strap
. 1	AN4-12A	Bolt
. 1	AN960-416	Washer
. 1	MS21042L4	Nut
. 1	FT4F-175H	T-Bolt
. 1	BH00182A4	Self-Aligning Nut



## 25-4 WEIGHT AND BALANCE

Removal of beams leaving clamps in place is an approved configuration for flight.  
Two weight and balance configurations are required: Clamps only; and Beams and Clamps.

Standard		Weight (lbs)	Longitudinal		Lateral	
P/N	Description		Arm (in)	Moment (in-lbs)	Arm (in)	Moment (in-lbs)
RH Provisions Installation						
90620-XX-XX	Clamp Assemblies	1.6	99.7	159.5	-0.7	-1.0
90630-01-01	Forward Beam Assembly	5.0	74.2	371.0	8.3	41.5
90631-01-00	Aft Beam Assembly	5.0	128.8	644.0	8.7	43.5
90602-01-01	RH Provisions Installation (Total)	11.6	101.3	1174.5	7.2	84.0
LH Provisions Installation						
90620-XX-XX	Clamp Assemblies	1.6	99.7	159.5	0.7	1.0
90630-01-02	Forward Beam Assembly	5.0	74.2	371.0	-8.3	-41.5
90631-01-00	Aft Beam Assembly	5.0	128.8	644.0	-8.7	-43.5
90602-01-02	LH Provisions Installation (Total)	11.6	101.3	1174.5	-7.2	-84.0

Metric		Weight (kg)	Longitudinal		Lateral	
P/N	Description		Arm (mm)	Moment (mm-kg)	Arm (mm)	Moment (mm-kg)
RH Provisions Installation						
90620-XX-XX	Clamp Assemblies	0.7	2532	1833	-17	-12
90630-01-01	Forward Beam Assembly	2.3	1885	4264	211	477
90631-01-00	Aft Beam Assembly	2.3	3226	7298	221	500
90602-01-01	RH Provisions Installation (Total)	5.3	2552	13396	184	965
LH Provisions Installation						
90620-XX-XX	Clamp Assemblies	0.7	2532	1833	17	12
90630-01-02	Forward Beam Assembly	2.3	1885	4264	-211	-477
90631-01-00	Aft Beam Assembly	2.3	3226	7298	-221	-500
90602-01-02	LH Provisions Installation (Total)	5.3	2552	13396	-184	-965

## 25-5 STRUCTURAL FASTENER DATA

Refer to Robinson R44 Maintenance Manual, section 1.300 for torque values not listed in this ICA.

## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 906.92

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### QUICK RELEASE CARGO BASKET ROBINSON R44, R44 II

#### Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Cargo Basket is installed in accordance with AERO Design Ltd. Document Control List DCL906-2.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 1  
Date: 20 June 2011

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AERO Design Ltd.  
Engineering Consultants

2013 – 39<sup>th</sup> Avenue N.E., Calgary, Alberta T2E 6R7  
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**RECORD OF REVISIONS**

Revision Number	Issue Date	Date Inserted	By
0	22 September 2010		Original Issue
1	20 June 2011		

**LIST OF EFFECTIVE PAGES**

List of Revisions

Revision 0 (Original Issue)  
Revision 122 September, 2010  
20 June 2011

List of Effective Pages

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## CHAPTER 0 – INTRODUCTION

### 0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Cargo Basket as described herein.

### 0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness  
LH - Left Hand  
RH - Right Hand

### 0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Cargo Basket. Requests for a copy may be made in writing to:

AERO Design Ltd.  
2013 39<sup>th</sup> Avenue N.E.  
Calgary, Alberta  
T2E 6R7  
Fax: 403-250-8333  
Email: [info@aerodesign.ca](mailto:info@aerodesign.ca)

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

### 0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

**CAUTION:** This installation is NOT compatible with fixed or pop-out float installations.

## 0-5 GENERAL DESCRIPTION

The cargo basket installation is a mesh basket installed to the side of the helicopter on beams attached to fittings mounted on the cross tube elbows. The quick release mechanism allows for the installation and removal of the basket quickly without tools, leaving the mounting beams in place.

The basket itself is made of a steel welded tubing structure, and lined with expanded steel mesh. The basket has a hinged lid with a self-locking handle.

The beams consist of a steel tube bolted to fittings attached to the forward and aft cross tube elbows. The quick release mechanism is built into the steel tube.

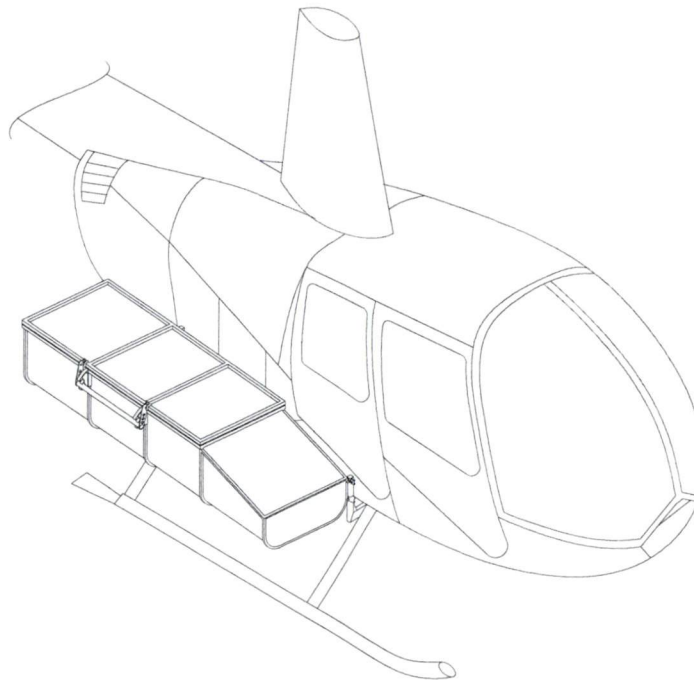


Figure 0.1 – Robinson R44 Cargo Basket Installation

## CHAPTER 4 - AIRWORTHINESS LIMITATIONS

### *Transport Canada*

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

### *FAA*

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Cargo Basket.

## CHAPTER 5 – INSPECTION REQUIREMENTS

### 5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Cargo Basket.

#### *Daily Inspection*

##### 1. Inspection Area: Basket

- a) Inspect the basket attachment to the beams for condition and security. Ensure quick release stop pin is completely extended, flush with the outboard surface of the beam. If pin does not completely extend, or spring tension is not sufficient to retain basket, replace spring, refer to section 25-4.
- b) Inspect latching of the lid for correct operation. Replace handle brackets on basket if handle is not retained in latched position. Refer to section 25-3.

#### *100 Hour or Annual Inspection*

##### 1. Inspection Area: Basket

- a) Visually inspect tube-to-tube welds and mesh-to-tube welds for cracks, corrosion or other damage.
- b) Visually inspect basket mesh for damage.

#### *Special Inspections*

Following a hard landing inspect the Quick Release Cargo Basket installation in accordance with the 100 hour or annual inspection listed above.

### 5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

##### 1. Basket and Lid Tubing

#### *Damage Limits:*

- a) Deformation of any tubing between welded joints not exceeding 0.25 inches in any direction must be repaired in accordance with the instructions below.
- b) Corrosion not exceeding 0.015 inches deep to be buffed out to a smooth contour.
- c) Corrosion exceeding 0.015 inches deep to be repaired in accordance with the instructions below.



*Repair Instructions:*

- a) Repair Basket and Lid tubing in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, paragraphs 4-80, 4-81 and 4-83 as required.

Basket and Lid are fabricated from the following materials:

Attachment Hoops: 1" square steel tube and/or 1/2" square steel tube  
 Lid and Rim: 3/4" square steel tube  
 Frames: 1/2" square steel tube

- b) Touch up with polyurethane paint as required following repairs.

## 2. Basket and Lid Mesh

*Damage Limits:*

- a) The basket mesh may be deformed or stretched without limit, so long as the welds attaching the mesh to the basket or lid are not compromised. If welds are compromised, repair in accordance with instructions below.
- b) Tears in the mesh not exceeding 4 cells in any direction may be repaired by patching. Maximum one repair patch per bay. See instructions below.

*Repair Instructions:*

- a) Repair mesh to tube welds in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, as required.

Mesh: 3/4" 16 ga. (0.040") expanded steel mesh

- b) Patch repair:

- a. Cut two aluminum sheets, minimum 0.040 inches thick, extending to at least 1 complete cell outside of torn area. Drill #9 holes in the corners of the sheet, located to clear the mesh when installed.
- b. Attach patches, one inside and one outside, to the mesh with AN3 Bolts, AN970-3 Washers, and MS21044N3 Nuts.

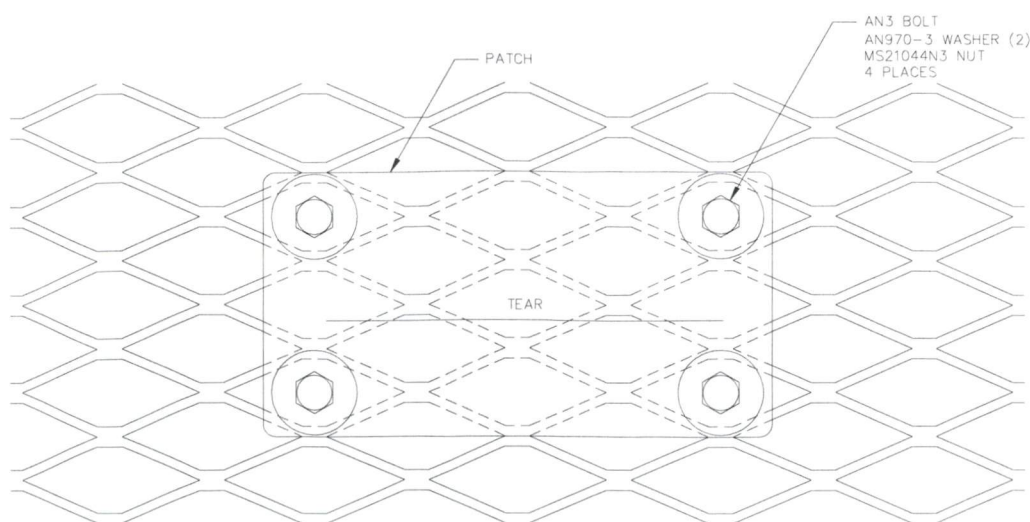


Figure 5.1 – Patch Repair

- c) Touch up with polyurethane paint as required following repairs.

### **5-3 PROTECTIVE TREATMENT INFORMATION**

#### **1. Cargo Basket**

The cargo basket is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

**CHAPTER 11 – MARKINGS AND PLACARDS**

The following markings and placards are used with the Quick Release Cargo Basket Installation in the locations noted:

a) Located on basket lid:



RIGHT HAND BASKET



LEFT HAND BASKET

**CHAPTER 25 – EQUIPMENT AND FURNISHINGS****SECTION 50 – CARGO COMPARTMENTS****25-1 BASKET REMOVAL**

1. Pull knob at bottom end of aft beam and lift basket until attachment fittings are free of keyways. Rest aft end of basket on ground.
2. Slide basket forward and lift attachment fitting out of keyway in forward beam.

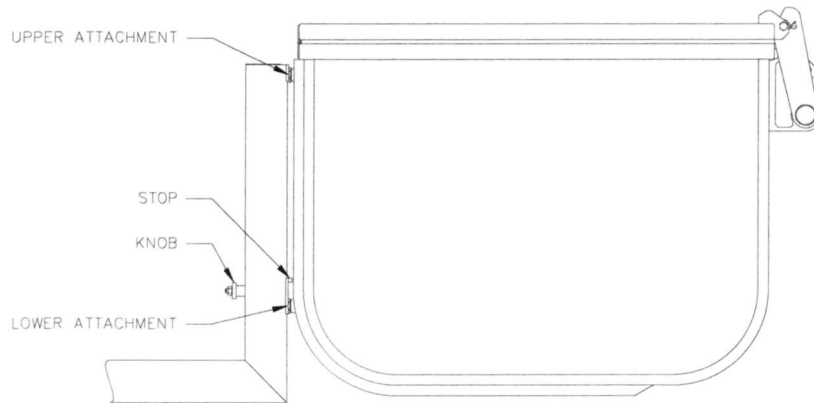


Figure 25.1 – Aft Attachment Features

**25-2 BASKET INSTALLATION**

Installation of the Quick Release Mounting Provisions is required prior to installing the Quick Release Cargo Basket. Refer to ICA906.91.

1. At forward end of basket, set upper attachment fitting into keyway in forward beam. Allow basket to hang from fitting, rest aft end on ground.

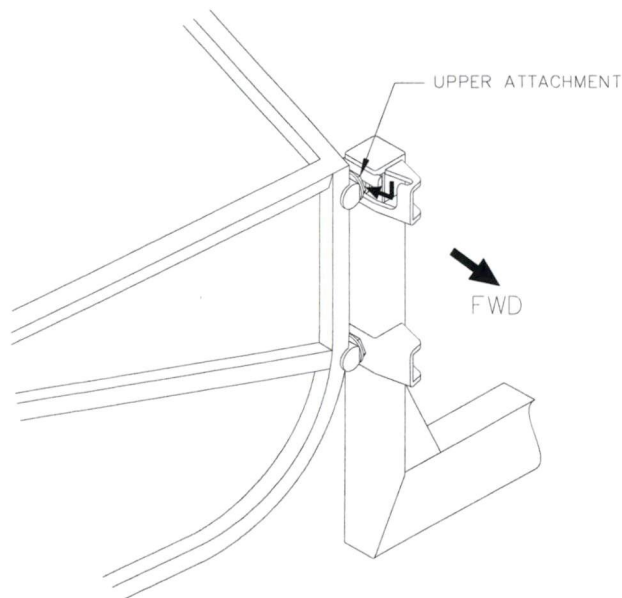


Figure 25.2 – Forward Basket Attachment Features



2. Raise aft end of basket to aft beam, sliding basket aft, and lift until lower attachment fitting hits stop over keyway.
3. Push fitting into lower keyway, ensure top fitting enters top keyway, and slide basket down until locked. Pull up on aft end basket to ensure basket is locked in place on aft beam.
4. Ensure spring-loaded pin securing lower aft basket attachment is extended flush with outboard surface of beam.

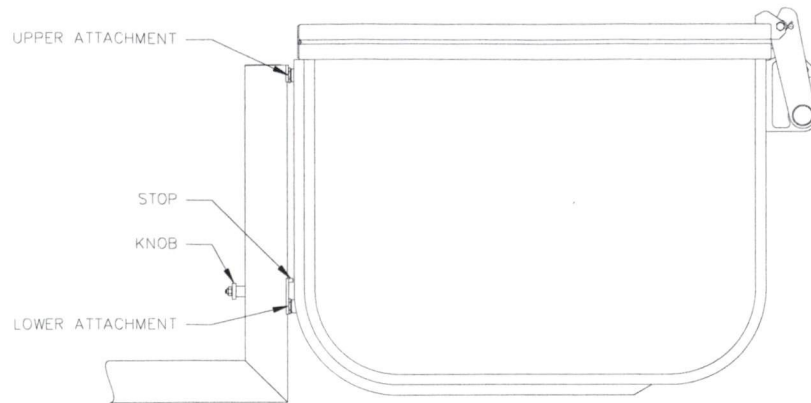


Figure 25.3 – Aft Basket Attachment Features

### 25-3 HANDLE BRACKET REPLACEMENT

1. Remove two (2) AN3-11A Bolts, AN960-10 Washers and MS21044N3 Nuts from each Handle Bracket (84267-01). Remove handle brackets from basket hoops.

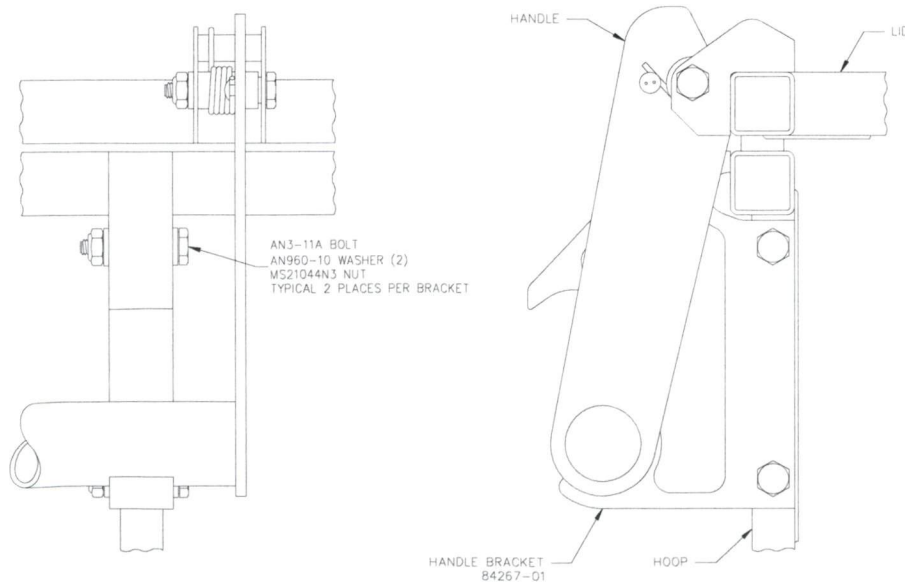


Figure 25.4 – Handle Bracket Parts

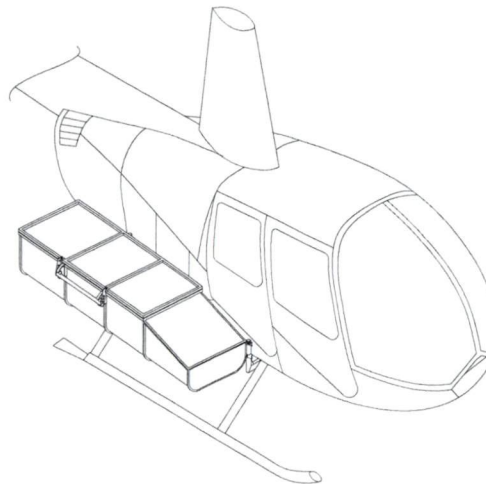
2. Slide two (2) replacement Handle Brackets (84267-01) onto basket hoops. Align Handle Bracket to bushings in hoop. Insert two (2) AN3-11A Bolts with

AN960-10 Washers through Handle Bracket and bushing. Install AN960-10 Washer and MS21044N3 Nut on each bolt. Torque nuts to 20-25 in-lbs.

#### 25-4 QUICK RELEASE PIN SPRING REPLACEMENT

1. Remove basket from mounting beams, refer to section 25-1.
2. At lower attachment keyway on aft beam, remove MS21044C3 Nut from #10-32 stainless steel countersunk screw and remove 69830-13 Knob, 69830-12 Stop, and 69830-23 Spring. Discard defective Spring.
3. Place 69830-12 Stop on #10-32 stainless steel countersunk screw. Slide replacement 69830-23 Spring onto Stop. Insert screw/Stop/Spring into guide in lower keyway of aft beam. Install 69830-13 Knob and MS21044C3 Nut on inboard side of beam. Torque nut to 20-25 in-lbs.

#### 25-5 WEIGHT AND BALANCE



Quick Release Cargo Basket: Configuration 90601-01

Standard P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
90610-01-XX	Basket	41.8	112.4	4698.3	34.4	1437.9
90602-01-XX	Quick Release Mounting Provisions	11.6	101.3	1174.5	7.2	84.0
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>53.4</b>	<b>110.0</b>	<b>5872.8</b>	<b>28.5</b>	<b>1521.9</b>
Maximum Cargo (centred in basket)		175.0	112.4	19670.0	34.4	6020.0

Metric P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
90610-01-XX	Basket	18.9	2855	53999	874	16526
90602-01-XX	Quick Release Mounting Provisions	5.3	2552	13396	184	965
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>24.2</b>	<b>2789</b>	<b>67394</b>	<b>724</b>	<b>17491</b>
Maximum Cargo (centred in basket)		80.0	2855	228397	874	69901

Note: -XX indicates side. -01 is RH, -02 is LH. Lateral arm is negative on LH side.

**OPTIONS**

The following weight and balance is for optional configurations of the basket

Standard P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
70408-01	Hangar Wheel	0.8	149.0	119.2	31.1	24.9

Metric P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
70408-01	Hangar Wheel	0.4	3785	1370	790	286

**25-6 STRUCTURAL FASTENER DATA**

Refer to Robinson R44 Maintenance Manual, section 1.300 for torque values not listed in this ICA.



United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

IMPORT

*Number* SxxxxxNY

*This certificate issued to* Aero Design Ltd.  
2013-39<sup>th</sup> Avenue NE  
Calgary, Alberta, T2E 6R7  
Canada

*certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations.*

*Original Product -- Type Certificate Number:* H11NM

*Make:* Robinson

*Model:* R44, R44II

*Description of Type Design Change:*

The installation of Quick Release Mounting Provisions and Quick Release Cargo Basket.

1. **Configuration A-Quick Release Mounting Provisions:** Installation of Quick Release Mounting Provisions to be done in accordance with Transport Canada approved Aero Design Ltd. Document Control List, DCL 906-1, Revision 0 dated September 23, 2010, or later Transport Canada approved revision.
2. **Configuration B-External Cargo Basket:** Installation of Configuration A, Quick Release Mounting Provisions is a prerequisite for the installation of Configuration B, External Cargo Basket. Installation of Quick Release Cargo basket to be done in accordance with Transport Canada approved Aero Design Ltd. Document Control List, DCL 906-2, Revision 0 dated September 23, 2010, or later Transport Canada approved revision.

*Limitations and Conditions:*

1. **Configuration A- Quick Release Mounting Provisions:**
  - a. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 906.91, Revision 0 dated September 20, 2010, Transport Canada accepted October 20, 2010, or later Transport Canada accepted revisions are required for this installation.
  - b. Quick Release Mounting Provisions installed in accordance with DCL906-1 may remain installed if a cargo basket configuration is removed. Mounting beams may be removed leaving attachment fittings in place on the landing gear.

(Limitations and Conditions continued on page 2 of 2)

*This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the*

*Date of application:* November 30, 2010

*Date revised:*

*Date of issuance:* June 9, 2011

*Date amended:*

*Federal Aviation Administration.*

*By direction of the Administrator*



(Signature)

Anthony Socias  
Manager  
New York Aircraft Certification Office

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.



United States of America  
Department of Transportation -- Federal Aviation Administration

# Supplemental Type Certificate

(Continuation Sheet)

Number *SXXXXNY*

*Limitations and Conditions* (Continued):

2. **Configuration B-External Cargo Basket:**

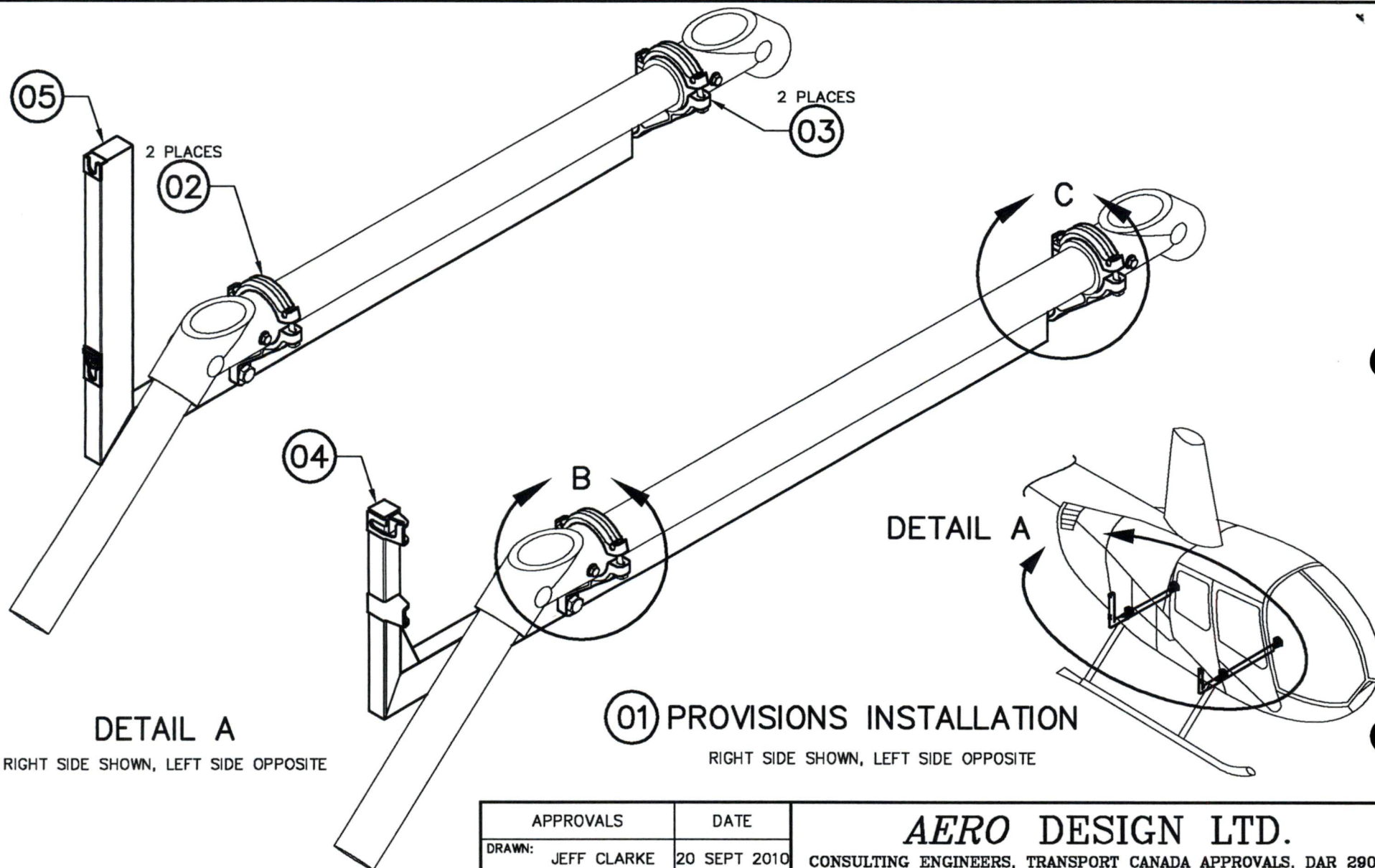
- 22*
- Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 906.90, Revision 0 dated September 23, 2010, or later Transport Canada approved revision.
  - Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 906.92, Revision 0 dated September 22, 2010, Transport Canada accepted October 20, 2010 or later Transport Canada accepted revisions are required for this installation.

3. **Cargo Basket Modifications:**

Modifications to the Cargo Basket configurations eligible in accordance with Transport Canada approved, Aero Design Ltd. Document Control list DCL704, Revision 6 dated April 29, 2010, or later approved revision. Eligibility limitations are noted on the drawings.

- The Installer must determine whether this design change is compatible with previously approved modifications.
- If the holder agrees to permit another person to use the certificate to alter a product, the holder must give the other person written evidence of that permission.

-----END-----



# DETAIL A

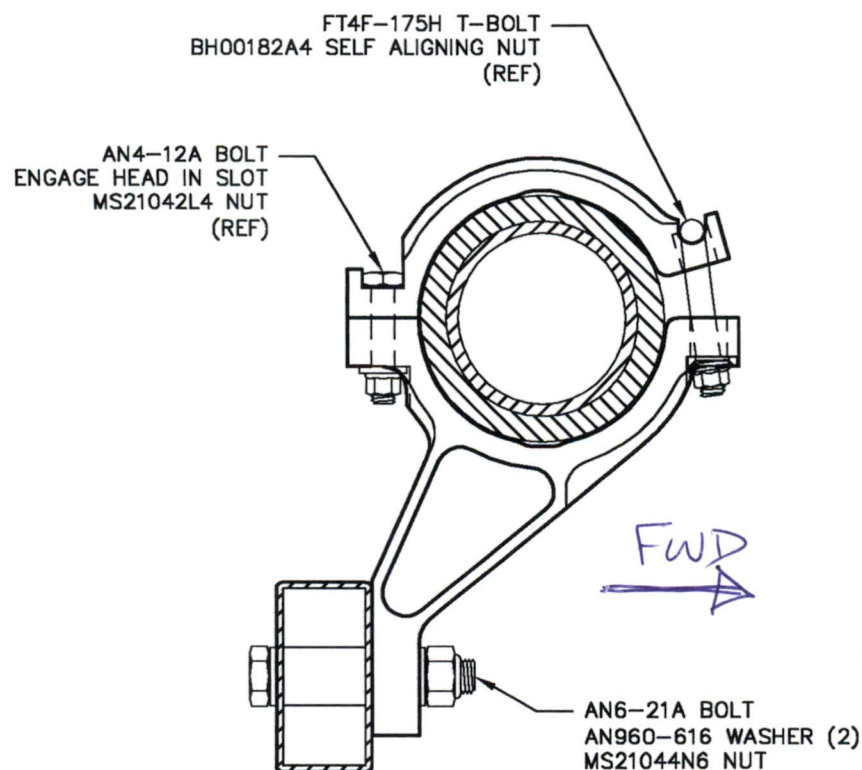
RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE

# 01 PROVISIONS INSTALLATION

RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE

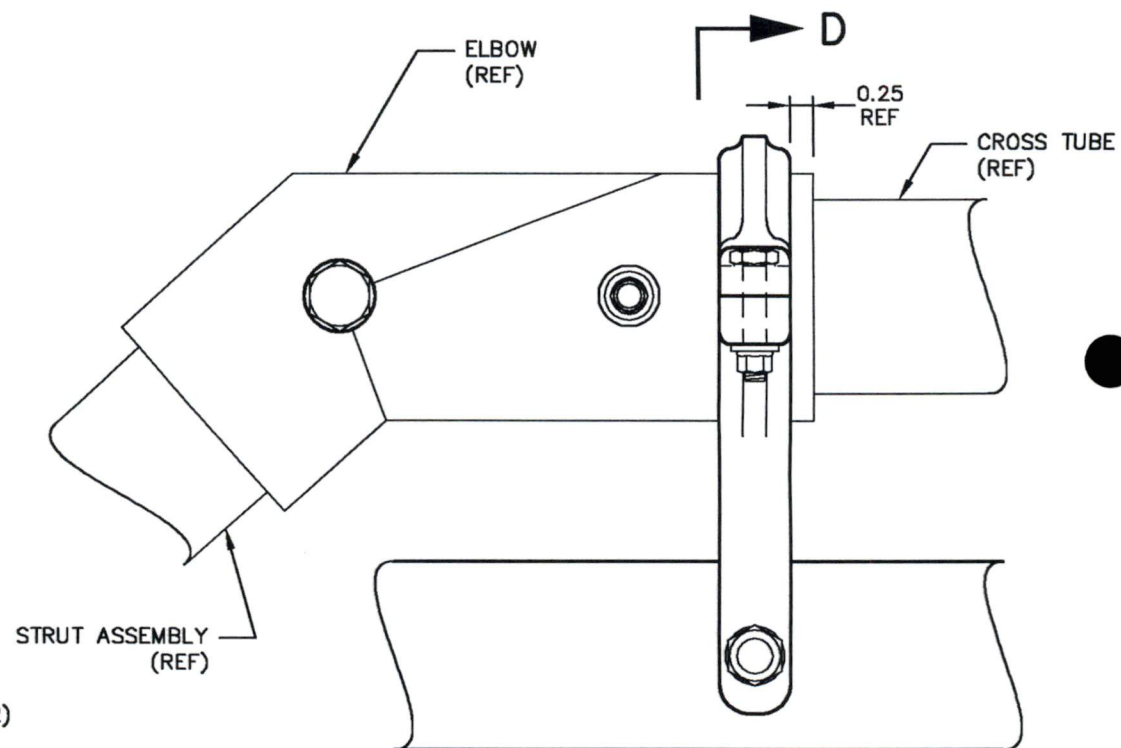
APPROVALS		DATE		<b>AERO DESIGN LTD.</b>					
DRAWN: JEFF CLARKE		20 SEPT 2010		CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M					
CHECKED: E. BURGOIN				2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7					
				tel: (403) 250-8027		fax: (403) 250-8333		www.aerodesign.ca	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:  DECIMALS                      ANGLES X.XXX ±0.010                      ±1/2° X.XX ±0.03 X.X ±0.1				ROBINSON R44, R44 II					
				QUICK RELEASE CARGO BASKET					
				ATTACHMENT PROVISIONS INSTALLATION					
				NOT TO SCALE		DWG. SIZE		DWG. NO.	
SHEET 1 OF 4		A4		90602		0			

tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca



### SECTION D-D

LOOKING INBOARD FROM RIGHT

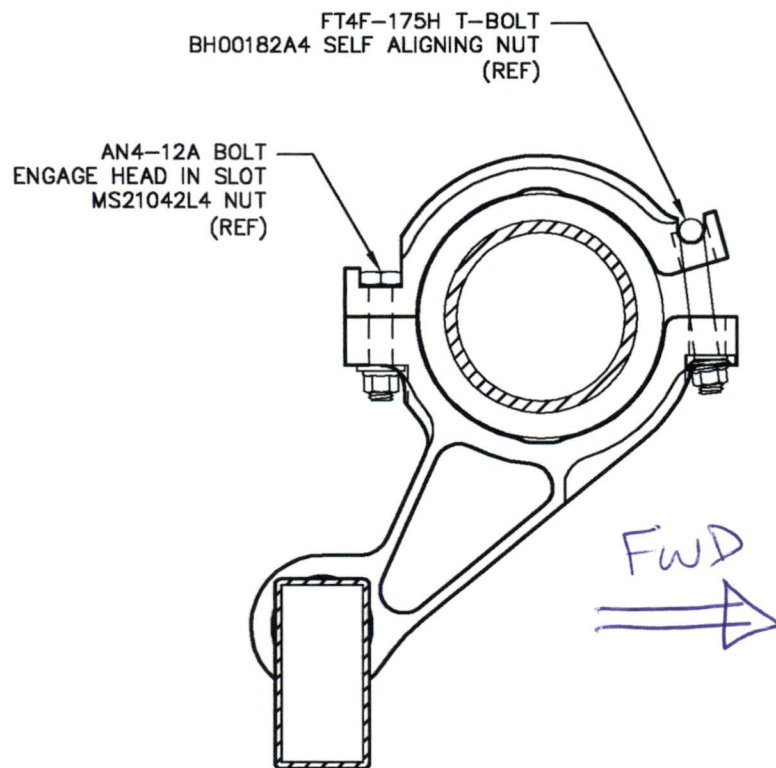


### DETAIL B

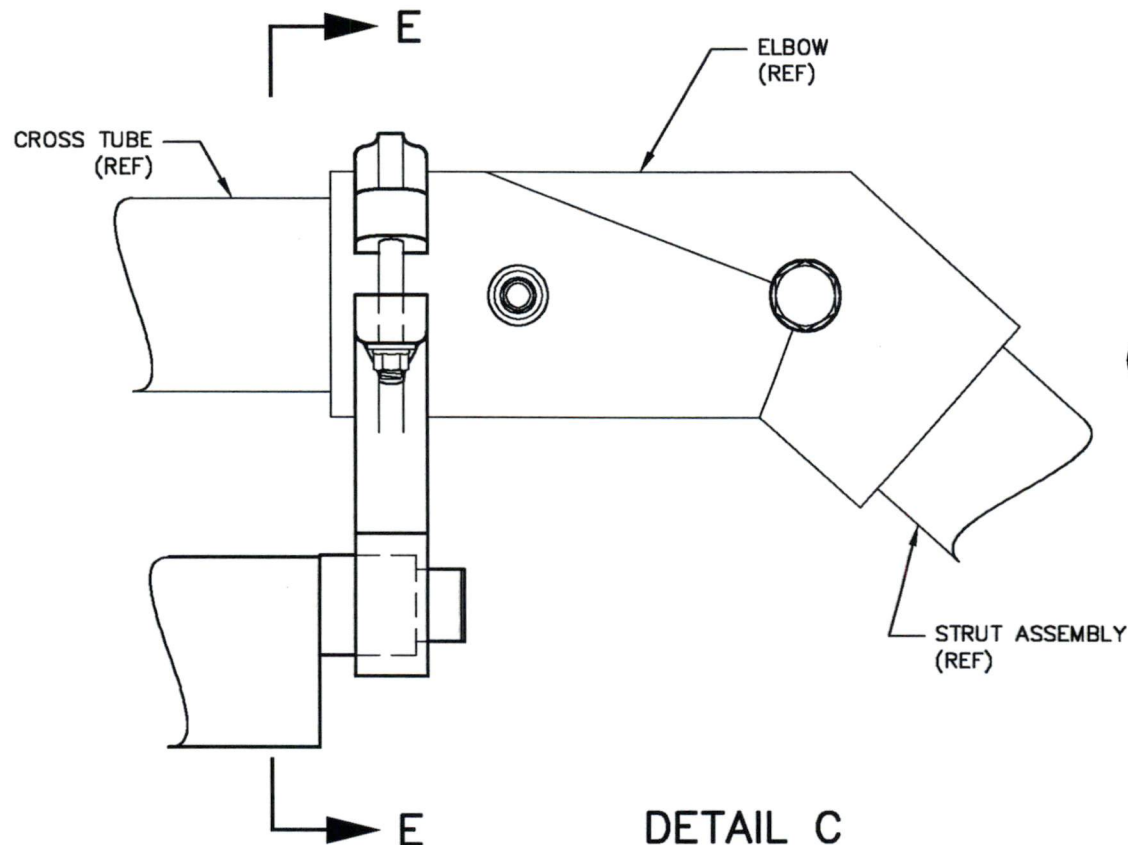
ATTACHMENT CLOSE TO BASKET, LOOKING AFT  
RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE  
FORWARD AND AFT INSTALLATION SAME

APPROVALS		DATE		<div>AERO DESIGN LTD.</div> <div>CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M 2013 – 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027      fax: (403) 250-8333      www.aerodesign.ca</div>						
DRAWN: JEFF CLARKE		20 SEPT 2010								
CHECKED: E. BURGOIN										
<div>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:</div> <div>DECIMALS                      ANGLES</div> <div>X.XXX ±0.010                      ±1/2°</div> <div>X.XX ±0.03</div> <div>X.X ±0.1</div>				<div>ROBINSON R44, R44 II</div> <div>QUICK RELEASE CARGO BASKET</div> <div>ATTACHMENT PROVISIONS INSTALLATION</div>						
				NOT TO SCALE		DWG. SIZE	DWG. NO.		REV.	
				SHEET 2 OF 4		A4	90602		0	





**SECTION E-E**  
LOOKING OUTBOARD FROM RIGHT



**DETAIL C**  
ATTACHMENT FAR FROM BASKET, LOOKING AFT  
RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE  
FORWARD AND AFT INSTALLATION SAME

APPROVALS		DATE		<div>AERO DESIGN LTD.</div> <div>CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M 2013 – 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027      fax: (403) 250-8333      www.aerodesign.ca</div>					
DRAWN: JEFF CLARKE		20 SEPT 2010							
CHECKED: E. BURGOIN									
<div>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:</div> <div>DECIMALS      ANGLES</div> <div>X.XXX ±0.010      ±1/2°</div> <div>X.XX ±0.03</div> <div>X.X ±0.1</div>				<div>ROBINSON R44, R44 II</div> <div>QUICK RELEASE CARGO BASKET</div> <div>ATTACHMENT PROVISIONS INSTALLATION</div>					
				NOT TO SCALE		DWG. SIZE	DWG. NO.	REV.	
				SHEET 3 OF 4		A4	90602	0	



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REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	*	*	*

NOTES:

1. THIS INSTALLATION MAY BE APPLIED TO STANDARD OR EXTENDED SKID GEAR.  
THIS INSTALLATION IS NOT COMPATIBLE WITH FIXED OR POP-OUT FLOATS.
2. STRUT FAIRINGS (C082-XX) MUST BE REMOVED IF INSTALLED. REFER TO R44 MAINTENANCE MANUAL, SECTION 5.410.  
FORWARD CROSS TUBE COVER (C475-5) MUST BE REMOVED. LEAVE CHANNELS (C388-3) IN PLACE.
3. REMOVAL OF BEAMS LEAVING CLAMPS IN PLACE IS AN APPROVED CONFIGURATION FOR FLIGHT.
4. SEE FLIGHT MANUAL SUPPLEMENT, FMS906.90, FOR LIMITATIONS ON HELICOPTER OPERATIONS WITH CARGO BASKET INSTALLED.
5. SEE INSTRUCTIONS FOR CONTINUED AIRWORTHINESS, ICA906.91, FOR MAINTENANCE INFORMATION.

WEIGHT AND BALANCE

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
02/03	CLAMPS (4)	1.6	99.7	159.5	-0.7	-1.0
04/05	BEAMS (FORWARD AND AFT)	10.0	101.5	1015.0	8.5	85.0
01	PROVISIONS INSTALLATION (TOTAL)	11.6	101.3	1174.5	7.2	84.0

2	2	MS21044N6	NUT
4	4	AN960-616	WASHER
2	2	AN6-21A	BOLT
1	1	90631-01-00	05 AFT BEAM
1		90630-01-02	04 FORWARD BEAM (LH)
	1	90630-01-01	04 FORWARD BEAM (RH)
1		90620-02-02	03 CLAMP ASSEMBLY (FAR, LH)
	1	90620-02-01	03 CLAMP ASSEMBLY (FAR, RH)
2	2	90620-01-00	02 CLAMP ASSEMBLY (CLOSE)
		90602-01-02	01 PROVISIONS INST'N (LH)
		90602-01-01	01 PROVISIONS INST'N (RH)
-02	-01	PART NO.	ITEM DESCRIPTION
QTY.		LIST OF MATERIALS	

APPROVALS		DATE
DRAWN:	JEFF CLARKE	20 SEPT 2010
CHECKED:	E. BURGOIN	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:		
DECIMALS	ANGLES	
X.XXX ±0.010	±1/2°	
X.XX ±0.03		
X.X ±0.1		

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ROBINSON R44, R44 II QUICK RELEASE CARGO BASKET ATTACHMENT PROVISIONS INSTALLATION			
NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.
SHEET 4 OF 4	A4	90602	0

R44 BASKET INSTALL COMMENTS

LIMITED WREACH CLEARANCE

FITTING RUBBER INTO HOLE - STUCK

AN 4 BOLT FIRST THEN T-BOLT

BEAM ALIGNMENT

INSTRUCTION TO REMOVE WASHERS  
ON SOLID STUD ?



SENDER ACCOUNT NO. N° DE COMPTE DE L'EXPÉDITEUR <b>4367155</b>		IMPORTANT - TÉLÉPHONE <b>(403) 250 8027</b>	
SENDER (FROM) / EXPÉDITEUR (DE) <b>AERO DESIGN</b>		MO DY/JR YR/AN <b>11/30/10</b>	
STREET ADDRESS / ADRESSE (N° ET RUE) <b>2013 39 AVE NE</b>			
CITY / VILLE <b>CALGARY</b>		PROV./STATE/ÉTAT <b>AB</b>	POSTAL / ZIP <b>T2E 6R7</b>
RECEIVER (TO) / DESTINATAIRE (À) <b>TRANSPORT CANADA - AIRCRAFT CERTIFK.</b>			
STREET ADDRESS / ADRESSE (N° ET RUE) <b>11 FLOOR, CANADA PLACE, 9700 JASPER AVE</b>			
CITY / VILLE <b>EDMONTON</b>		PROV./STATE/ÉTAT <b>AB</b>	POSTAL / ZIP <b>T5J 4E 6</b>
ATTN: (NAME / DEPT.) / À L'ATTENTION DE (NOM / SERVICE) <b>JACK STAAL</b>		IMPORTANT - TÉLÉPHONE <b>(780) 495 5227</b>	
DESCRIPTION (INCLUDING DANGEROUS GOODS / INCLUANT MARCHANDISES DANGEREUSES) <b>DOCUMENTS</b>			
SENDER REFERENCE (IF ANY) / REF. DE L'EXPÉD.		PICK UP / CUEILLETTE - N° DE CONF. <b>0002</b>	

SENDER SIGNATURE / SIGNATURE DE L'EXPÉDITEUR

X  X  
SEE CONDITIONS OF CARRIAGE ON REVERSE / CONDITIONS DE TRANSPORT AU VERSO

1746040

SHIP MODE / MODE DE TRANSPORT			
AIR AÉRIEN <input type="checkbox"/>		GROUND ROUTIER <input checked="" type="checkbox"/>	
PKG / EMBAL.		SERVICE	
1 TYPE ONLY TYPE SEULEMENT CHOISIR CHOISIR	PURO- LETTER <input checked="" type="checkbox"/>	9 AM 9 h <input type="checkbox"/>	
	PURO- PAK <input type="checkbox"/>	10:30 AM 10 h 30 <input type="checkbox"/>	
	OTHER AUTRE <input type="checkbox"/>	SAT. SAM. <input type="checkbox"/>	
PAYMENT / PAIEMENT			
CASH COMPTANT <input type="checkbox"/>		CREDIT CARD CARTE DE CRÉDIT <input type="checkbox"/>	
RECEIVER OR THIRD PARTY ACCOUNT NO. / N° DE COMPTE DU DESTINATAIRE OU TIERS			
RECEIVER DESTINATAIRE <input type="checkbox"/>		3RD PARTY TIERS <input type="checkbox"/>	
SHIPMENT / DÉTAILS / EXPÉDITION			
#/Nbre PCS (4 MAXIMUM) <b>1</b>	WEIGHT / POIDS SUBJ. TO CORR. / SUJET À CORR. KG LB <b>1</b>		
DECLARED VALUE / VALEUR DÉCLARÉE (SURCHARGE APPLIES OVER \$100 / SUPPLÉMENT AU-DESSUS DE 100 \$) \$ <b>NIL</b> \$5,000 MAX. MAX 5 000 \$			
SEE CONDITIONS OF CARRIAGE ON REVERSE / CONDITIONS DE TRANSPORT AU VERSO			


BILL OF LADING NO.  
-NOT NEGOTIABLE  
N° DE CONNAISSANCE  
-NON NEGOCIABLE

2972 480 1492



www.purolator.com

1 888 SHIP-123

COURIER INITIALS INITIALES DU COURRIER 		COURIER ROUTE ITINÉRAIRE DU COURRIER 	MO DY/JR YR/AN <b>11/30</b>
NO./N° TYPE <input type="checkbox"/> VISA <input type="checkbox"/> MC <input type="checkbox"/> AMEX			EXP. DATE D'EXP.

RECEIVER OR THIRD PARTY ACCOUNT NO. / N° DE COMPTE DU DESTINATAIRE OU TIERS	CHARGES FRAIS
TOTAL AMOUNT / MONTANT TOTAL	
THIRD PARTY BILLING NAME & ADDRESS / FACTURATION À UN TIERS (NOM & ADRESSE)	

LIMITATION OF LIABILITY - IMPORTANT - PLEASE READ  
THE AMOUNT OF ANY LOSS OR DAMAGE FOR WHICH THE  
CARRIER MAY BE LIABLE SHALL NOT EXCEED \$2.00 PER  
POUND (OR \$4.41 PER KILOGRAM) COMPUTED ON THE  
TOTAL WEIGHT OF THE SHIPMENT UNLESS A HIGHER  
VALUE IS DECLARED ON THE FACE OF THE BILL OF LADING  
BY THE CONSIGNOR (SENDER). MAXIMUM DECLARED  
VALUE SHALL NOT EXCEED \$5,000. A.B. NOTE CAREFULLY  
CONDITIONS ON BACK HEREOF INCLUDING LIMITATIONS  
AND EXCLUSIONS OF CARRIER'S LIABILITY, WHICH ARE  
HEREBY ACCEPTED.LIMITATION DE RESPONSABILITÉ - IMPORTANT - LISEZ S.V.P.  
LE MONTANT DE TOUTE PERTE OU DOMMAGE DONT LE  
TRANSPORTEUR POURRAIT ÊTRE RESPONSABLE NE DOIT PAS  
EXCÉDER 2.00 \$ LA LIVRE (OU 4.41 \$ LE KILOGRAMME), CALCULÉ  
SUR LE POIDS TOTAL DE L'EXPÉDITION, À MOINS QU'UNE VALEUR  
SUPÉRIEURE N'AIT ÉTÉ DÉCLARÉE SUR LE RECTO DU  
CONNAISSANCE PAR L'EXPÉDITEUR. LA VALEUR DÉCLARÉE  
MAXIMALE NE DÉPASSERA PAS 5 000 \$ A.B. VEUILLEZ PRENDRE  
CONNAISSANCE DES CONDITIONS AU VERSO, Y COMPRIS LES  
LIMITATIONS ET EXCLUSIONS DE RESPONSABILITÉ DU  
TRANSPORTEUR, QUI SONT ACCEPTÉES PAR LES PRÉSENTES.PLEASE REFER TO BILL OF LADING NUMBER FOR SHIPMENT STATUS / INQUIRIES.  
POUR TOUT RENSEIGNEMENT, VEUILLEZ NOUS COMMUNIQUER LE NUMÉRO DE  
CONNAISSANCE.

**PUROLATOR COURIER LTD. - CONDITIONS OF CARRIAGE****CONDITION 1 RECEIPT & FREIGHT**

Received at the point of origin on the date specified, from the sender mentioned herein, the property herein described; in apparent good order, except as noted (contents and conditions of contents of package unknown), marked, consigned and destined as indicated herein, which the carrier agrees to carry and to deliver to the consignee at the said destination, if on its own authorized route, or otherwise to cause to be carried by another carrier on the route to said destination, subject to the rates and classification in effect on the date of shipment.

It is mutually agreed, as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party at any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, including conditions on back hereof, which are hereby agreed by the sender and accepted for himself and his assigns.

**CONDITION 2 LIMITATION OF LIABILITY**

No carrier is liable for loss, damage or delay to any goods carried under this Bill of Lading, unless notice thereof setting out particulars of the origin, destination and date of shipment of the goods and the estimated amount claimed in respect of such loss, damage or delay is given in writing to the originating carrier or the delivering carrier within sixty (60) days after the delivery of the goods, or, in case of failure to make delivery, within nine (9) months from the date of shipment.

The final statement of the claim must be filed within nine (9) months from the date of shipment together with a copy of the paid freight bill.

**CONDITION 3 APPLICABLE LAW**

The contract for the carriage of goods contained in this Bill of Lading shall be deemed to include and be subject to the terms and conditions prescribed by law of the jurisdiction where the goods originate which are if Newfoundland and Saskatchewan, the Motor Carrier Act of each such province; Nova Scotia, British Columbia and New Brunswick, the Motor Vehicle Act of each such province; Prince Edward Island, the Highway Traffic Act; Quebec, the Transport Act; Ontario, the Truck Transportation Act; Manitoba, the Highway Traffic Act; Alberta and the Yukon, the Motor Transport Act for such province and Territory; Nunavut and the Northwest Territories, the Motor Vehicles Act for each such Territory; and any regulations to each of the above mentioned Acts; the Convention for the Unification of Certain Rules relating to International Carriage by Air signed at Warsaw, Poland, October 12, 1929 or that Convention as amended by the Hague Protocol 1955, the Montreal Protocol No. 4, and/or the Convention supplementary to the Warsaw Convention for the Unification of Certain Rules relating to International Carriage by Air Performed by a Person Other than the Contracting Carrier, which may apply to the carriage of international shipments and, in most cases will limit the liability of Purolator in respect of loss or damage to, or delay in the carriage of, such shipments, may apply to the carriage of international shipments.

**CONDITION 4 SPECIAL AGREEMENT**

The parties agree that notwithstanding any disclosure of nature or value of the goods, the amount of any loss or damage, if any, including consequential, incidental or indirect damages, loss of earnings or profits, resulting from the loss of or damage to the goods and/or misdelivery, failure to deliver or delay in delivery of the goods, shall not exceed the maximum liability of the carrier aforesaid. Notwithstanding any other condition contained herein, the carrier is not financially responsible for the consequences of a delay in delivering a shipment by any particular time or from misdelivery or a failure to deliver.

**CONDITION 5 PAYMENT GUARANTEE**

The sender agrees to pay the carrier all shipping charges in the event the receiver, on a collect shipment or the third party on a third party billing shipment, refuses to pay the carrier.

**CONDITION 6 RESERVATION OF RIGHT AND MODIFICATION OF CONTRACT**

The carrier reserves the right to substitute alternate modes of transportation for that selected by the sender on the front of this Bill of Lading. Any exercise by the carrier of this right shall in no way affect the maximum liability of the carrier aforesaid. This Bill of Lading and Purolator Courier Ltd.'s printed Terms and Conditions (available on request) constitute the entire contract between the carrier and the sender, and no agent, servant, or representatives of the carrier has authority to alter, modify or waive any provision of this contract.

**COURRIER PUROLATOR LTÉE - CONDITIONS DE TRANSPORT****CONDITION 1 RÉCEPTION ET FRET**

Reçues au point d'origine à la date et de l'expéditeur mentionné aux présentes les marchandises ci-après décrites en bon état apparent (le contenu des colis et sa condition étant inconnus), marquées, contresignées et destinées tel que ci-après mentionne, que le transporteur consent à transporter et à livrer à leur consignataire au point de destination si ce point se trouve sur la route qu'il est autorisé à desservir, si non à faire transporter et livrer par un autre transporteur autorisé à ce faire et ce, au taux et à la classification en vigueur à la date de l'expédition.

Il est mutuellement convenu que chaque transporteur transportant lesdites marchandises en tout ou en partie, sur le parcours entier ou une portion quelconque de celui-ci jusqu'à destination et que tout intéressé à ladite expédition pour tout service à effectuer en vertu des présentes est sujet à toutes les conditions imprimées ou écrites non prohibées par la loi, incluant les conditions contenues au verso des présentes qui sont acceptées par l'expéditeur pour lui-même et ses ayants-droit.

**CONDITION 2 LIMITATION DE RESPONSABILITÉ**

Le transporteur n'est responsable de pertes, de dommages ou de retards aux marchandises transportées avec le présent connaissance, qu'à la condition qu'un avis écrit précisant l'origine des marchandises, leur destination, leur date d'expédition et le montant approximatif réclamé en réparation de la perte, des dommages ou du retard, ne soit signifié au transporteur initial ou au transporteur de destination, dans les soixante (60) jours suivant la date de la livraison des marchandises; ou dans les cas de non livraison, dans un délai de neuf (9) mois suivant la date de l'expédition.

La présentation de la réclamation finale accompagnée d'une preuve du paiement des frais de transport doit être soumise au transporteur dans un délai de neuf (9) mois suivant la date de l'expédition.

**CONDITION 3 LOI APPLICABLE**

Le contrat pour le transport des marchandises décrites au connaissance est réputé inclure les modalités et les conditions prescrites par la loi de la province d'où provient l'envoi, à savoir, pour Terre-Neuve et la Saskatchewan, la «Motor Carrier Act» de chaque de ces provinces; pour la Nouvelle-Écosse et la Colombie-Britannique, la «Motor Vehicle Act» de chacune de ces provinces; pour le Nouveau-Brunswick, la Loi sur les véhicules à moteur; pour l'Île-du-Prince-Édouard, la «Highway Traffic Act»; pour le Québec, la Loi sur les transports; pour l'Ontario, la Loi sur le camionnage; pour le Manitoba, le Code de la route; pour l'Alberta et le Yukon, la «Motor Transport Act» de cette province et de ce territoire; pour le Nunavut et les Territoires du Nord-Ouest, la «Motor Vehicles Act» de chacun de ces territoires; ainsi que les règlements connexes à chacune des lois précitées, et y être assujéti. La Convention du 12 octobre 1929 pour l'unification de certaines règles relatives au transport aérien international signée à Varsovie, en Pologne, ou ladite Convention telle qu'elle a été modifiée par le protocole de La Haye en 1955, le Protocole de Montréal N° 4 et/ou la Convention complémentaire à la Convention de Varsovie pour l'unification de certaines règles relatives au transport aérien international effectuée par une personne autre que le transporteur contractuel, qui peuvent s'appliquer au transport des envois internationaux et, dans la plupart des cas, limiteront la responsabilité de Purolator quant à la perte ou aux dommages, ou encore aux retards liés au transport, de tels envois, peut s'appliquer au transport d'envois internationaux.

**CONDITION 4 ENTENTE SPÉCIALE**

Il est convenu que, malgré toute divulgation de la nature ou de la valeur des marchandises, le montant de toute perte ou dommage, le cas échéant, y compris les dommages indirects, accessoires ou incidents résultant de la perte ou d'un dommage aux marchandises, d'une erreur de livraison, du défaut ou d'un retard dans la livraison des marchandises, ne doit en aucun cas excéder la responsabilité maximale précitée du transporteur.

Nonobstant toute autre condition contenue dans la présente, le transporteur ne sera pas tenu financièrement responsable des conséquences du retard de livraison d'un envoi, quelle que soit l'ampleur du retard, qu'il s'agisse d'une erreur de livraison ou d'une non-livraison.

**CONDITION 5 GARANTIE DE REMBOURSEMENT**

L'expéditeur convient de payer au transporteur tous les frais d'expédition si le consignataire, pour un envoi porté dû, ou la tierce personne, en cas de facturation à un tiers, refuse de payer le transporteur.

**CONDITION 6 DROIT RÉSERVÉ ET MODIFICATION DU CONTRAT**

Le transporteur se réserve le droit de choisir un mode de transport différent de celui sélectionné par l'expéditeur au recto du présent connaissance. Toute décision prise à cet effet par le transporteur n'influencera nullement les responsabilités maximales dudit transporteur. Le présent connaissance ainsi que les modalités et les conditions de transport imprimées de Courrier Purolator Ltée (disponibles sur demande) constituent la totalité du contrat entre le transporteur et l'expéditeur. Aucun agent, employé ou représentant du transporteur ne peut modifier, changer ou abandonner une clause du présent contrat.





Transport  
Canada

Transports  
Canada

1100, 9700 Jasper Avenue  
Edmonton, Alberta  
Canada T5J 4E6

Your file      Votre référence

Our file      Notre référence

C-10-1034  
SH10-48

December 3, 2010

Department of Transportation  
Federal Aviation Administration  
New York Aircraft Certification Office, ANE-170  
1600 Stewart Avenue, Suite 410  
Westbury, New York 11590  
USA

Attn: Mr. A. Socias, Manager

Subject : **Application for FAA Supplemental Type Certificate (STC)**  
**Installation of Cargo Basket, Robinson R-44, R-44II**

We have received an application from a Canadian applicant, AERO Design Ltd., for the issue of a Canadian Supplemental Type Certificate (STC) and a FAA STC as follows:

**Applicant:** AERO Design Ltd  
2013 39<sup>th</sup> Avenue NE.  
Calgary, Alberta, Canada  
T2E 6R7

**Project Description:**  
Quick Release Cargo Basket

**Type:** Robinson R44 and R44II models **TCDS:**  
H-97/H11NM

We have reviewed the applicant's submission and hereby certify that this design change complies with the basis of approval specified in the above noted TCDS therefore allowing issue of the following approval:

Approval: SH10-48	dated:	October 21, 2010
Issue: 1	dated	October 21, 2010

We have also reviewed the applicant's submission and hereby certify that this design change complies with the basis of certification specified in the above-noted FAA Type Certificate Data Sheet(s) and certify that, with this modification incorporated, the aircraft continues to meet its basis of certification, unless additional technical conditions are applied by the Federal Aviation Administration.

.....2/

Canada

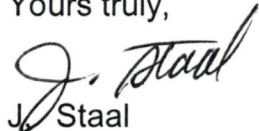
Please consider this to be a formal application for reissue of the FAA STC under the terms of the Canada/U.S. Bilateral Airworthiness Agreement. In support of this application, the following are enclosed:

A copy of Supplemental Type Certificate SH10-48, Issue 1, dated October 21, 2010,

The original of the signed FAA application form 8110-12,  
2 CDs (copies 1 and 2) – AERO Design Ltd "Robinson R44/R44II Quick Release Cargo Basket". Each CD contains a complete data set.

Should you have any questions please contact the undersigned.

Yours truly,



J. Staal  
Aircraft Certification Engineering Technologist  
Prairie and Northern Region  
(780)495-5227  
fax 495-7963  
e-mail [staalj@tc.gc.ca](mailto:staalj@tc.gc.ca)

enclosures

cc: AERO Design Ltd.

**AERO DESIGN LTD.**

2013 - 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027

Fax: 403-250-8333

www.aerodesign.ca



30 November 2010

Transport Canada  
Aircraft Certification Division  
11<sup>th</sup> Floor, Canada Place  
9700 Jasper Avenue  
Edmonton, Alberta  
T5J 4E6

Attn: Jack Staal

Your File : C-10-1034

Our File : 906

Re: Robinson R44 Cargo Basket - FAA STC application

Jack,

Please find attached the following documents related to this project:

Modification Approval Request Application Form

MOD906

Rev. 1

CDs with the data will be couriered to you for submission to the FAA.

Regards,

E. Burgoin, P.Eng, DAR 290M

Encl.



3 Copies attached.

Jff Chk.

Application form signed by Jack Staal; copy attached.  
Thanks

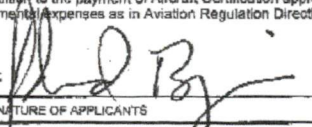

Debbie Dubyk

Dec 1/10.



## MODIFICATION APPROVAL REQUEST APPLICATION FORM

MOD906, Rev. 1

1. NAME AND ADDRESS OF APPLICANT:		2. IDENTIFICATION OF PRODUCT				
AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		MAKE: Robinson	MODEL: R44, R44 II			
ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		SERIAL No.: All eligible	REGISTRATION: All Eligible			
3. REQUEST FOR:						
A. SUPPLEMENTAL TYPE CERTIFICATE (STC) <input type="checkbox"/>						
B. STC/STA REVISION <input type="checkbox"/> STC/STA No.						
C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC) <input type="checkbox"/>						
D. LIMITED STC/STA REVISION <input type="checkbox"/> LSTC/LSTA No.						
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE <input checked="" type="checkbox"/> C-10-1034						
F. F.A.A. STC REVISION <input type="checkbox"/> STC No.						
G. FAMILIARIZATION OF F.A.A. STC <input type="checkbox"/> STC No.						
H. REPAIR DESIGN APPROVAL (RDC) <input type="checkbox"/>						
I. PARTS DESIGN APPROVAL (PDA) <input type="checkbox"/>						
4. TITLE OF MODIFICATION OR REPAIR: Quick Release Mounting Provisions Installation; Quick Release Cargo Basket Installation						
5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR: Installation of provision on the helicopter to allow equipment such as cargo baskets to be quickly installed or removed without using tools. Installation of a cargo basket on the mounting provisions.						
6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:						
A. TA NO. H-97 B. TC No. C. OTHER						
7. PROPOSED BASIS OF APPROVAL:						
A. SAME AS TA <input checked="" type="checkbox"/> B. SAME AS TC <input type="checkbox"/> C. OTHER <input type="checkbox"/> (Please specify)						
8. DOCUMENTATION CHECKLIST		REQUIRED		FOR DOT USE ONLY		
		YES	NO	YES	NO	DATE
COMPLIANCE PROGRAM		X				
MASTER DRAWING LIST		X				
FLIGHT MANUAL SUPPLEMENT		X				
MAINTENANCE MANUAL SUPPLEMENT			X			
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS		X				
ENGINEERING REPORTS		X				
DESIGN DRAWINGS			X			
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS		X				
ELECTRICAL LOAD ANALYSIS			X			
DRAFT STC, LSTC OR RDA		X				
WEIGHT AND MOMENT CHANGE		X				
FLIGHT TEST DATA		X				
OTHER (Specify)						
9. APPLICANT'S REMARKS: FAA STC based on Canadian STC SH10-48						
10. In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada its incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 613/4.						
PER: 		Consultant		30 November, 2010		
SIGNATURE OF APPLICANTS		TITLE		DATE		
11. 				30 Nov 2010		
SIGNATURE OF REGIONAL ENGINEER				DATE		



**AERO DESIGN LTD.**

2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027

Fax: 403-250-8333

www.aerodesign.ca

**FAXED**  
30 Nov 2010  
11 AM

30 November 2010

Transport Canada  
Aircraft Certification Division  
11<sup>th</sup> Floor, Canada Place  
9700 Jasper Avenue  
Edmonton, Alberta  
T5J 4E6

Attn: Jack Staal

Your File : C-10-1030

Our File : 906

Re: Robinson R44 Cargo Basket - FAA STC application

Jack,

Please find attached the following documents related to this project:

Modification Approval Request Application Form

MOD906

Rev. 1

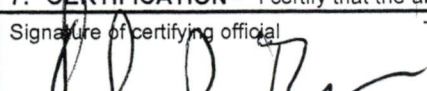
CDs with the data will be couriered to you for submission to the FAA.

Regards,



E. Burgoin, P.Eng, DAR 290M

Encl.

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION  <b>APPLICATION FOR TYPE CERTIFICATE, PRODUCTION CERTIFICATE,          OR SUPPLEMENTAL TYPE CERTIFICATE</b>		<b>FORM APPROVED</b>  O.M.B. No. 04-R0078
1. Name and address of applicant AERO Design Ltd. 2013 39 <sup>th</sup> Avenue NE Calgary, Alberta, Canada T2E 6R7	2. Application made for - <input type="checkbox"/> Type Certificate <input type="checkbox"/> Production Certificate <input checked="" type="checkbox"/> Supplemental Type Certificate	3. Product involved <input checked="" type="checkbox"/> Aircraft <input type="checkbox"/> Engine <input type="checkbox"/> Propeller
<b>4. TYPE CERTIFICATE</b> (Complete item 4a below)		
a. Model designation(s) (All models listed are to be completely described in the required technical data, including drawings representing the design, material, specifications, construction, and performance of the aircraft, aircraft engine, propeller which is the subject of this application.)		
<b>5. PRODUCTION CERTIFICATE</b> (Complete items 5a-c below. Submit with this form, in manual form, one copy of quality control data or changes thereto covering new products, as required by applicable FAR.)		
a. Factory address (If different from 1 above)	b. Application is for - <input type="checkbox"/> New Production Certificate <input type="checkbox"/> Additions to Production Certificate (Give P.C. No.)	P.C. No.
c. Applicant is holder of or a licensee under a Type Certificate or a Supplemental Type Certificate (Attach evidence of licensing agreement and give certificate number)		T.C./S.T.C. No.
<b>6. SUPPLEMENTAL TYPE CERTIFICATE</b> (Complete items 6a-d below)		
a. Make and model designation of product to be modified Robinson R44, R44 II		
b. Description of modification Installation of provisions on the helicopter to allow equipment such as cargo baskets to be quickly installed or removed without using tools. Installation of a cargo basket on the mounting provisions.		
c. Will data be available for sale or release to other persons?  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	d. Will parts be manufactured for sale? (Ref. FAR 21.303)  <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
<b>7. CERTIFICATION</b> - I certify that the above statements are true.		
Signature of certifying official 	Title President, AERO Design Ltd. DAR 290M	Date 30 November 2010

**AERO DESIGN LTD.**

2013 - 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027

Fax: 403-250-8333

www.aerodesign.ca

**FAXED**  
30 Nov 2010  
11 AM

30 November 2010

Transport Canada  
Aircraft Certification Division  
11<sup>th</sup> Floor, Canada Place  
9700 Jasper Avenue  
Edmonton, Alberta  
T5J 4E6

Attn: Jack Staal

Your File : C-10-1030

Our File : 906

Re: Robinson R44 Cargo Basket - FAA STC application

Jack,

Please find attached the following documents related to this project:

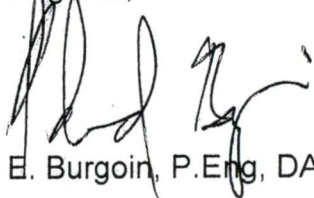
Modification Approval Request Application Form

MOD906

Rev. 1

CDs with the data will be couriered to you for submission to the FAA.

Regards,



E. Burgoin, P.Eng, DAR 290M

Encl.



3 copies attached.

Jeff Clark.



# MODIFICATION APPROVAL REQUEST APPLICATION FORM

MOD906, Rev. 1

## 1. NAME AND ADDRESS OF APPLICANT:

AERO Design Ltd.  
2013 - 39th Avenue NE  
Calgary, Alberta  
T2E 6R7

## 2. IDENTIFICATION OF PRODUCT

MAKE:  
Robinson

MODEL:  
R44, R44 II

ALL CORRESPONDANCE TO:  
AERO Design Ltd.  
2013 - 39th Avenue NE  
Calgary, Alberta  
T2E 6R7

SERIAL No.:  
All eligible

REGISTRATION:  
All Eligible

## 3. REQUEST FOR:

- A. SUPPLEMENTAL TYPE CERTIFICATE (STC) ☐
- B. STC/STA REVISION ☐ STC/STA No.
- C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC) ☐
- D. LIMITED STC/STA REVISION ☐ LSTC/LSTA No.
- E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE ☒ C-10-1030
- F. F.A.A. STC REVISION ☐ STC No.
- G. FAMILIARIZATION OF F.A.A. STC ☐ STC No.
- H. REPAIR DESIGN APPROVAL (RDC) ☐
- I. PARTS DESIGN APPROVAL (PDA) ☐

## 4. TITLE OF MODIFICATION OR REPAIR:

Quick Release Mounting Provisions Installation; Quick Release Cargo Basket Installation

## 5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR:

Installation of provision on the helicopter to allow equipment such as cargo baskets to be quickly installed or removed without using tools. Installation of a cargo basket on the mounting provisions.

## 6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:

A. TA NO. H-97 B. TC No. C. OTHER

## 7. PROPOSED BASIS OF APPROVAL:

A. SAME AS TA ☒ B. SAME AS TC ☐ C. OTHER ☐ (Please specify)

## 8.

### DOCUMENTATION CHECKLIST

### REQUIRED

### FOR DOT USE ONLY

### RECEIVED

YES NO YES NO DATE

COMPLIANCE PROGRAM

X

MASTER DRAWING LIST

X

FLIGHT MANUAL SUPPLEMENT

X

MAINTENANCE MANUAL SUPPLEMENT

X

INSTRUCTIONS FOR CONTINUING AIRWORTHINESS

X

ENGINEERING REPORTS

X

DESIGN DRAWINGS

X

MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS

X

ELECTRICAL LOAD ANALYSIS

X

DRAFT STC, LSTC OR RDA

X

WEIGHT AND MOMENT CHANGE

X

FLIGHT TEST DATA

X

OTHER (Specify)

## 9. APPLICANT'S REMARKS:

FAA STC based on Canadian STC SH10-48

## 10. In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4.

PER:

Consultant

30 November, 2010

SIGNATURE OF APPLICANTS

TITLE

DATE

## 11.

SIGNATURE OF REGIONAL ENGINEER

DATE





Transport  
Canada

Transports  
Canada

1100-9700 Jasper Avenue  
Edmonton, Alberta T5J 4E6

November 19, 2010

Your file      Votre reference  
906

Our file      Notre reference  
C-10-0741  
SH10-48

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada, T2E 6R7

Dear Sir:

**SUBJECT:      SUPPLEMENTAL TYPE CERTIFICATE NO. SH10-48 – ISSUE 1 DATED  
OCTOBER 21, 2010 – INSTALLATION OF QUICK RELEASE MOUNTING  
PROVISIONS; INSTALLATION OF QUICK RELEASE CARGO BASKET  
ROBINSON R44, R44 II ISSUED TO AERO DESIGN LTD.**

This Supplemental Type Certificate (STC) is issued in response to your application. Included with the STC are documents bearing the original Transport Canada signatures.

The transfer of these documents in the name of another person requires a prior approval from the Minister in accordance with Canadian Aviation Regulations (CAR) 521.357.

To accomplish this modification, the requirements of CAR 561 apply if parts are manufactured.

Embodiment of this modification is considered to be a maintenance activity and the requirements of CAR 571.06(4) will apply.

An STC holder is required to report any service problem experienced with their product. Therefore, should you become aware of any defect, malfunction or failure resulting from the design change, it is your responsibility to submit a Service Difficulty Report to Transport Canada in accordance with CAR Part V, Subpart 91. Other Obligations as a Design Approval Document Holder are contained in CAR 521, Division VIII.

Yours truly,

J. Staal  
Aircraft Certification Engineering Technologist  
Prairie and Northern Region  
Phone: 780-495-5227  
Facs: 780-495-7963

Encl.

AERO Design Ltd.

## AIRWORTHINESS REQUIREMENTS

COMPLIANCE PROGRAM

APPLICANT: AERO Design Ltd.  
2013 - 39th Ave N.E.  
Calgary, Alberta  
T2E 6R7

DATE: 05 August 2010  
REVISION No. 0

CP906

CORRESPONDANCE TO:  
(If other than applicant)

MAKE: Robinson  
MODEL: R44, R44 II

REGISTRATION: All Eligible  
SERIAL No.: All Eligible

NATURE OF WORK: Quick Release Mounting Provisions Installation; Quick Release Cargo Basket Installation

TYPE CERTIFICATE DATA SHEET: H-97

MODEL CERTIFICATION BASIS: FAR 27 dated 1 February 1965, including amendments 27-1 thru 24-24

MODIFICATION CERTIFICATION BASIS: FAR 27 dated 1 February 1965, including amendments 27-1 thru 24-24

Airworthiness Requirement	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
<b>Subpart B</b>	<b>Flight</b>				
27.29	Empty Weight and Corresponding C of G	Data specified on inst'n drawing		X	
27.51	Takeoff	Flight Test	X		
27.65	Climb: All Engines Operating	Flight Test	X		
27.71	Gliding Performance	Flight Test	X		
27.75	Landing	Flight Test	X		
27.141	Flight Characteristics - General	Flight Test	X		
27.143	Controllability and Maneuverability	Flight Test	X		
27.151	Flight controls	Flight Test	X		
27.161	Trim Control	Flight Test	X		
27.171	Stability - General	Flight Test	X		
27.173	Longitudinal Stability	Flight Test	X		
27.175	Demonstration of Longitudinal Stability	Flight Test	X		
27.177	Static Directional Stability	Flight Test	X		
27.241	Ground Resonance	Flight Test	X		
27.251	Vibration	Flight Test	X		
<b>Subpart C</b>	<b>Strength Requirements</b>				
27.301	Loads - Air Drag Loads	Analysis		X	
27.301	Loads - Inertia Loads	Compliance with 27.337 and 27.561		X	
27.303	Factor of Safety	Analysis		X	
27.305	Strength and Deformation	Analysis and Test iaw AC 43.13-1B		X	
27.307	Proof of Structure	Analysis and Test iaw AC 43.13-1B		X	

Per HQ Flight test.

Level of compliance that is marked "X" indicates a requirement is fully extended and highlighted in red.

Page 1 of 1

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P.2/3

Airworthiness Requirement	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
27.337	Limit Maneuvering Load Factor	Analysis and Test iaw AC 43.13-1B		X	Critical load factor in downward direction, up load condition applied to security of lid and latching mechanism.
27.547	Main Rotor Structure	Flight Test	X <i>qp</i>		Must bending consideration.
27.561	Emergency Landing Conditions	N/A	<i>HO</i>		Cargo basket and cargo are external to cabin, forward deflection or failure of basket poses no threat to occupants
<b>Subpart D</b>	<b>Design and Construction</b>				
27.601	Design	Drawings		X	Design is conventional.
27.603	Materials	Drawings		X	Materials used are specified in Mil-Hdbk-5H.
27.605	Fabrication Methods	Drawings		X	Design is conventional.
27.609	Protection of Structure	Drawings		X	
27.611	Inspection Provisions	Drawings		X	Design is easy to inspect.
27.613	Material Strength Properties and Design Values	Values used as per Mil-Hdbk-5H		X	
27.625	Fitting Factor	Analysis		X	
27.783	Doors	N/A			Installation does not block doors.
27.787(a)	Cargo and Baggage Compartments	Compliance with 23.301 through 307		X	
27.787(b)	Cargo and Baggage Compartments	Design		X	Basket is a closed container.
27.787(c), (d)	Cargo and Baggage Compartments	N/A			Cargo is external to helicopter.
27.807	Emergency Exits	N/A			Installation does not block doors.
27.865	External Load Attaching Means	N/A			Cargo basket is classified as a cargo compartment.
27.1387	Position Light System Dihedral Angles	N/A			No change from Type Approval.
27.1401	Anticollision Light System	N/A			No change from Type Approval.
<b>Subpart G</b>	<b>Operating Limitations and Information</b>				
27.1505	Never Exceed Speed	Flight Test, Flight Manual Supplement	X <i>qp</i>		V <sub>NE</sub> limits as specified in the existing Flight Manual (155 kts )
27.1525	Kinds of Operation	Flight Manual Supplement	X <i>qp</i>		Limited to VFR only.
27.1529	Instructions for Continuing Airworthiness	ICA Provided	X <i>qp</i>		
27.1557(a)	Miscellaneous Markings and Placards - Baggage Compartments	Placard		X	
27.1557(b)	Miscellaneous Markings and Placards	N/A			
27.1557(c)	Miscellaneous Markings and Placards	N/A			
27.1557(d)	Miscellaneous Markings and Placards	N/A			

Items of compliance that are marked "X" indicate paragraph(s) for which extension of delegation is requested.



Airworthiness Requirement	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
27.1581	Rotorcraft Flight Manual – General	Flight Manual Supplement	X <sup>ph</sup>		
27.1581(e)	Rotorcraft Flight Manual – General - Units	Flight Manual Supplement	X <sup>ph</sup>		SI and imperial units included
27.1583(c)	Operating Limitations – Weight and Loading Information	Flight Manual Supplement	X <sup>ph</sup>		
27.1585	Operating Procedures	Flight Manual Supplement	X <sup>ph</sup>		
27.1587	Performance Information	Flight Manual Supplement	X <sup>ph</sup>		per HQ report.
27.1589	Loading Information	Flight Manual Supplement & Placard	X <sup>ph</sup>		Placard installed on basket lid
<b>Canadian Airworthiness Manual Chapter 527, change 527-2, dated 1 February 1992</b>					
527.1301-1	Rotorcraft Operations After Ground Cold Soak	N/A			
527.1557(c)	Miscellaneous Marking and Placards	N/A			Not a fuel tank
(3)					
527.1583(h)	Operating Limitations – Ambient Temperature	N/A			No change from Type Approval



# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

## APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

### BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Cargo Basket Installation on Robinson R44, R44 II
Certification Basis of design change and revision date:	FAR 27, Amendment 27-24
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 906.92)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 90601

### BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.2 (a) Manual(s)</b> (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Single Manual (ICA906.92)
<b>A527.2 (b) Practical arrangement</b> (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Arranged in ATA format
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (a) Rotorcraft maintenance manual or section</b>		
<b>A527.3 (a) (1) (Introduction)</b> (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.000	Supplemental ICA ref: Section 0-1
<b>A527.3 (a) (2) (Description)</b> (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.007	Supplemental ICA ref: Section 0-5

### MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (a) (3) Control &amp; Operation</b> (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (a) (4) Servicing</b> (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.100	Supplemental ICA ref: N/A
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (b) Maintenance Instructions.</b>		
<b>A527.3 (b) (1) Scheduling</b> 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.101	Supplemental ICA ref: Section 5-1
<b>A527.3 (b) (2) Troubleshooting</b> (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A



### MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (b) (3) Removal/replacement</b> (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 4	Supplemental ICA ref: Section 25-1 and 25-2
<b>A527.3 (b) (4) General</b> (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.200	Supplemental ICA ref: Section 25-3
<b>A527.3 (c) Access</b> (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (d) Special inspections</b> (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-1
<b>A527.3 (e) Protective treatment</b> (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-3
<b>A527.3 (f) Fasteners, torque values, etc</b> (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.300	Supplemental ICA ref: Section 25-4
<b>A527.3 (g) Special tools</b> (g) A list of special tools needed.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 16	Supplemental ICA ref: N/A

## MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

### BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

<b>A527.4 AWL - Separate Section 1</b> The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, single page before Section 1	Supplemental ICA ref: Chapter 4  <div style="text-align: right;">✓</div>
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### BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.	
Applicants Signature:	Date: <u>September 23, 2010</u>
Applicants Name: <u>E. Burgoin, P.Eng, DAR 290M</u>	

### BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.			
Reviewer's Name: <u>J. STAAL</u>	Phone # <u>780-495-5227</u>	Email: <u>jack.staal@tc.gc.ca</u>	Mail Routing Symbol: <u>RAED</u>
Signature:	Date: <u>20 October 2010</u>		NAPA Number <u>C-10-0741</u>



# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

## APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

### BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Mounting Provisions on Robinson R44, R44 II
Certification Basis of design change and revision date:	FAR 27, Amendment 27-24
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 906.91)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 90602

### BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.2 (a) Manual(s)</b> (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Single Manual (ICA906.91)
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# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
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<b>A527.3 (b) (1) Scheduling</b> 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.101	Supplemental ICA ref: Section 5-1
<b>A527.3 (b) (2) Troubleshooting</b> (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A



# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
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<b>A527.3 (b) (4) General</b> (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.200	Supplemental ICA ref: Section 25-4
<b>A527.3 (c) Access</b> (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (d) Special inspections</b> (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-1
<b>A527.3 (e) Protective treatment</b> (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-3
<b>A527.3 (f) Fasteners, torque values, etc</b> (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.300	Supplemental ICA ref: Section 25-5
<b>A527.3 (g) Special tools</b> (g) A list of special tools needed.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 16	Supplemental ICA ref: N/A

## MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

### BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

#### A527.4 AWL - Separate Section 1

The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."

ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, single page before Section 1

Supplemental ICA ref: Chapter 4

### BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

Applicants Signature: \_\_\_\_\_

Date: September 23, 2010

Applicants Name: E. Burgoin, P.Eng, DAR 290M

### BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: J. STAAL

Phone # 780-495-5227

Email: jack.staal@tc.gc.ca

Mail Routing Symbol: RAED

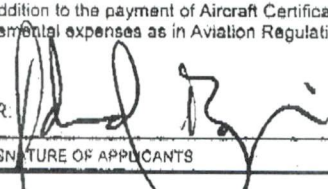

Signature: J. Staal

Date: 20 OCTOBER 2010

NAPA Number

C-10-0741



MODIFICATION APPROVAL REQUEST APPLICATION FORM				MOD906, Re	
1. NAME AND ADDRESS OF APPLICANT:		2. IDENTIFICATION OF PRODUCT			
AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		MAKE: Robinson		MODEL: R44, R44 II	
ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		SERIAL No.: All eligible		REGISTRATION: All Eligible	
3. REQUEST FOR:		C-10-0741			
A. SUPPLEMENTAL TYPE CERTIFICATE (STC) <input checked="" type="checkbox"/>		STC/STA No.			
B. STC/STA REVISION <input type="checkbox"/>		LSTC/LSTA No.			
C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC) <input type="checkbox"/>		STC No.			
D. LIMITED STC/STA REVISION <input type="checkbox"/>		STC No.			
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE <input type="checkbox"/>					
F. F.A.A. STC REVISION <input type="checkbox"/>					
G. FAMILIARIZATION OF F.A.A. STC <input type="checkbox"/>					
H. REPAIR DESIGN APPROVAL (RDC) <input type="checkbox"/>					
I. PARTS DESIGN APPROVAL (PDA) <input type="checkbox"/>					
4. TITLE OF MODIFICATION OR REPAIR: Quick Release Mounting Provisions Installation, Quick Release Cargo Basket Installation					
5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR: Installation of provision on the helicopter to allow equipment such as cargo baskets to be quickly installed or removed without using tools. Installation of a cargo basket on the mounting provisions					
6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS: A. TA NO. H-97 B. TC No. C. OTHER					
7. PROPOSED BASIS OF APPROVAL: A. SAME AS TA <input checked="" type="checkbox"/> B. SAME AS TC <input type="checkbox"/> C. OTHER <input type="checkbox"/> (Please specify)					
8. DOCUMENTATION CHECKLIST				REQUIRED	
				FOR DOT USE ONLY	
				RECEIVED	
				YES	NO
COMPLIANCE PROGRAM				X	
MASTER DRAWING LIST				X	
FLIGHT MANUAL SUPPLEMENT				X	
MAINTENANCE MANUAL SUPPLEMENT					X
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS				X	
ENGINEERING REPORTS				X	
DESIGN DRAWINGS					X
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS				X	
ELECTRICAL LOAD ANALYSIS					X
DRAFT STC, LSTC OR RDA				X	
WEIGHT AND MOMENT CHANGE				X	
FLIGHT TEST DATA				X	
OTHER (Specify)					
9. APPLICANT'S REMARKS:					
10. In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4					
PER. 		Consultant		31 August, 2010	
SIGNATURE OF APPLICANTS		TITLE		DATE	
11. 		Tech		10 Sept 2010	
SIGNATURE OF REGIONAL ENGINEER				DATE	

R44

Long

Lat

Weight

arm

Moment

arm

Moment

As weighed

1516.11

108.29

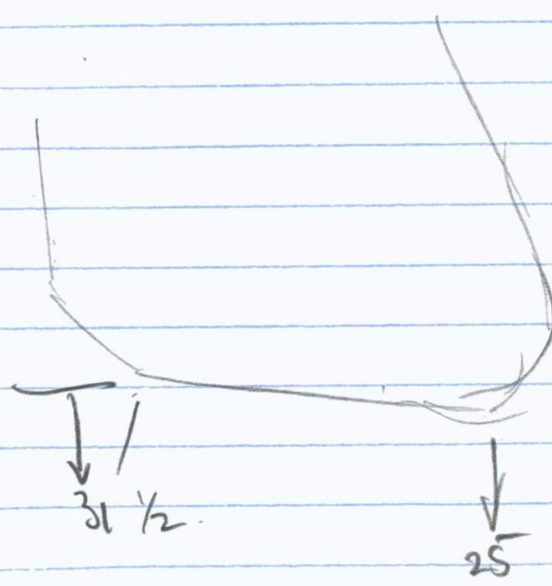
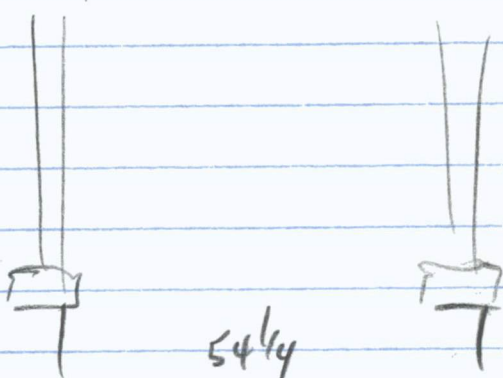
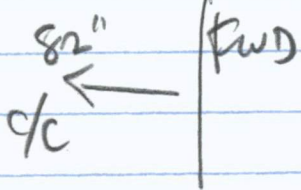
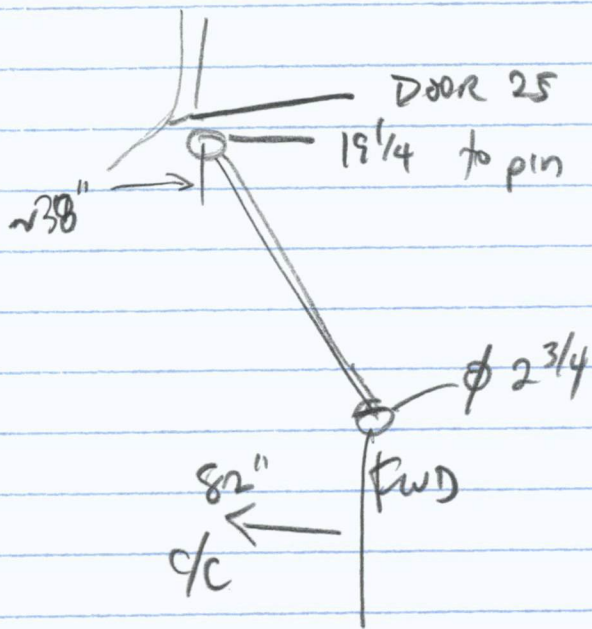
164182.64

0.30

455.01

Weight Max gross 2500 lb

Max width  $50 \frac{3}{16}$  across fuselage.



**AERO DESIGN LTD.**

2013 – 39<sup>th</sup> Ave N. E., Calgary, Alberta, T2E 6R7

www.aerodesign.ca

**F A X C O V E R S H E E T**

**DATE:** October 22, 2010

**TIME:** 7:07 AM

**TO:** **Delmar Washington**  
**Capital Helicopters**

**PHONE:** 867-668-6200

**FAX:** 687-668-6201

**FROM:** J. Clarke  
Aero Design Ltd.

**PHONE:** 403-250-8027

**FAX:** 403-250-8333

Number of pages including cover sheet: 12

**RE: R44 CARGO BASKET STC**

---

Delmar,

Please find attached the STC, document control lists, and flight manual supplement for the R44 Cargo Basket. Clean copies to follow.

Let me know if you have any questions.



Jeff

Aero Design.  
P: 403-250-8027.  
F: 403-250-8333.

Attn: Ron. - 403 948 4338

From: Richard @ Aero Design Ltd.

Re: R44 Basket STL + FMS

**FAXED**  
Oct 21, 2010

@ 4:30pm

10 pages incl. cover



Aerocorp Avionic Solutions Inc. AMO No 79-00  
 #1-1060 McTavish Rd. NE. Calgary, Alberta  
 Tel: (403) 717-9730 Fax: (403) 717-9733  
 Complied to CARS 571 App. B and FAR 91.411

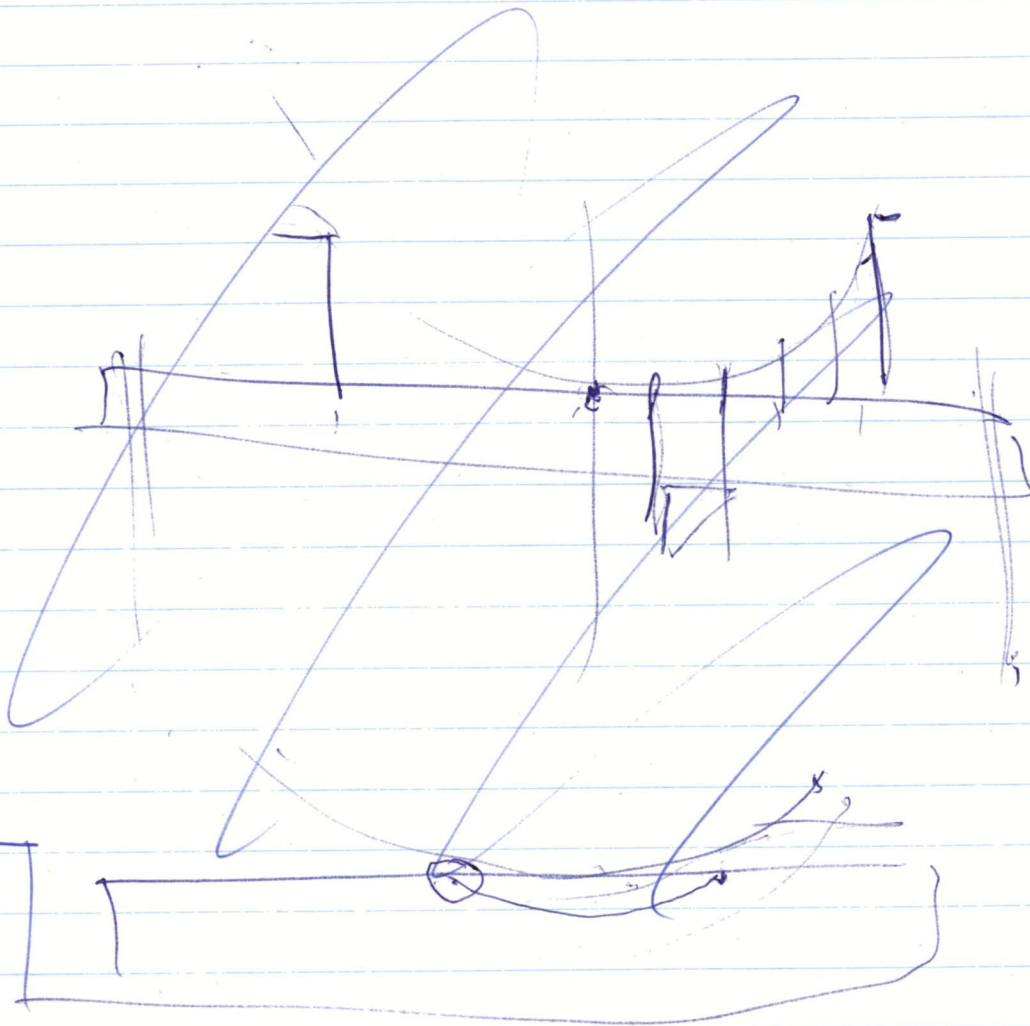
Altitude	Tolerance ± (Feet)	Climb	Dive
-1000	20	- 10	
0	20	- 20	
500	20	0	
1,000	20	0	
1,500	25	0	
2,000	30	0	
3,000	30	+ 5	
4,000	35	+ 5	
6,000	40	- 5	
8,000	60	- 20	+ 15
10,000	80	- 30	+ 5
12,000	90	- 50	
14,000	100	- 50	
16,000	110	- 30	
18,000	120	- 20	
20,000	130	+ 15	
22,000	140		
25,000	155		
30,000	180		
35,000	205		
40,000	230		
45,000	255		
50,000	280		

P/N 5934P-3 S/N 449714  
 W/O W2011 Date 18 DEC 09

R44 Altimeter  
 Calibration

CLIFF ROAD DWGS

~~70610~~



From Michel  
Oct 12/10

Left Basket  
70/80/90 kts error 6.2 kts

Right Basket  
70 kts 6 kts

everything else under

5 kts error

most 1-2 kts.

No problem, deviation is  
acceptable w/out re-test

**Staal, Jack**

**From:** Staal, Jack  
**Sent:** Friday, October 22, 2010 8:40 AM  
**To:** 'Jeff Clarke'; Dubyk, Debbie  
**Subject:** RE: C-10-0741 - Robinson R44 Cargo Basket

Debbie/Jeff

Done (Jeff - they will be faxed shortly).

Thanks  
Jack

- 1) Certificate with pagination corrected.
- 2) FMS with number entered.
- 3) DCL 906-2 (refaxed).

Jack .22 Oct 2010

**From:** Jeff Clarke [mailto:jeff@aerodesign.ca]  
**Sent:** Friday, October 22, 2010 6:54 AM  
**To:** Staal, Jack; Dubyk, Debbie  
**Subject:** C-10-0741 - Robinson R44 Cargo Basket

Jack/Debbie,

I'm going through the fax of the approval, couple of things:

- 1) The STC says "Page 2 of 3", should be "Page 2 of 2"
- 2) Please write the STC # on the cover of the FMS, I didn't have it when I submitted it.

Thank you,

Jeff Clarke, CET

AERO Design Ltd.  
2013 39th Avenue NE  
Calgary, Alberta, Canada  
T2E 6R7

Phone: 403.250.8027  
Fax: 403.250.8333

10/22/2010



Department of Transport

# Supplemental Type Certificate

This approval is issued to:

Aero Design Ltd.  
2013 39th Avenue North East  
Calgary, Alberta  
Canada T2E 6R7

Number: SH10-48

Issue No.: 1

Approval Date: October 21, 2010

Issue Date: October 21, 2010

Responsible Office:

Prairie and Northern

Aircraft/Engine Type or Model:

ROBINSON R44, R44 II

Canadian Type Certificate or Equivalent:

ROBINSON R44, R44 II H-97

Description of Type Design Change:

Installation of Quick Release Mounting Provisions; Installation of Quick Release Cargo Basket

Installation/Operating Data,  
Required Equipment and Limitations:

## Configuration A - Quick Release Mounting Provisions:

Installation of Quick Release Mounting Provisions to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List, DCL906-1, Revision 0, dated 23 September 2010, or later approved revision.

Transport Canada accepted, Aero Design Ltd. Instructions for Continued Airworthiness ICA 906.91, Revision 0, dated 22 September 2010, or later approved revision is required with this installation.

Quick Release Mounting Provisions installed in accordance with DCL906-1 may remain installed if a cargo basket configuration is removed. Mounting beams may be removed leaving attachment fittings in place on the landing gear.



**Conditions:** This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.

D.S. Austen  
For Minister of Transport

Canada



*(Continuation Sheet)*

Number: SH10-48 Issue 1

---

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

---

**Configuration B - External Cargo Basket**

Installation of Configuration A, Quick Release Mounting Provisions, is a prerequisite for installation of the Configuration B, External Cargo Basket Installation. Installation of Quick Release Cargo Basket to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List, DCL906-2, Revision 0, dated 23 September 2010, or later approved revision.

Transport Canada approved, AERO Design Ltd. Flight Manual Supplement FMS906.90, Revision 0, dated 22 September 2010, or later approved revision is required with this installation.

Transport Canada accepted, AERO Design Ltd. Instructions for Continued Airworthiness ICA906.92, Revision 0, dated 22 September 2010, or later accepted revision is required with this installation.

**Cargo Basket Modifications:**


Modifications to the Cargo Basket configurations eligible in accordance with Transport Canada approved, AERO Design Ltd. Document Control List DCL704, Revision 6, dated 29 April 2010, or later approved revision. Eligibility limitations are noted on the drawings.

**Basis of Certification:**


The basis of certification remains as defined in the applicable Type Certificate Data Sheets.

— End —

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>INSTALLATION DOCUMENTS</b>		
90602	Quick Release Mounting Provisions Installation	0
ICA906.91	Instructions for Continued Airworthiness	0
FMS906.90	Flight Manual Supplement	0
<b>FABRICATION DOCUMENTS</b>		
DCL906-11	Document Control List for External Attachment Provisions Fabrication	0
<b>ENGINEERING DOCUMENTS</b>		
<b>APPROVAL:</b>		
 Transport Canada AIRCRAFT CERTIFICATION DIVISION <b>APPROVED</b> By <i>D. S. Austin</i> Appr'l No. <u>SH10-48</u> Appr'l Date <u>2010-10-21</u> Issue No. <u>1</u> Issue Date <u>2010-10-21</u> YY-MM-DD		ORIGINAL DATE: 23 September 2010 REVISION DATE:
SHEET 1 OF 1		<b>AERO DESIGN LTD.</b> 2013 - 35 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333 www.aerodesign.ca
<b>Robinson R44, R44 II Quick Release Mounting Provisions Installation</b>		Rev.
<b>DCL906-1</b>		<b>0</b>

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>INSTALLATION DOCUMENTS</b>		
90601	Quick Release Cargo Basket installation	0
ICA906.92	Instructions for Continued Airworthiness	0
FMS906.90	Flight Manual Supplement	0
<b>FABRICATION DOCUMENTS</b>		
DCL906-12	Document Control List for Quick Release Cargo Basket	0
<b>ENGINEERING DOCUMENTS</b>		
<b>APPROVAL:</b>		
 <div style="display: flex; justify-content: space-between;"> <div>Transport Canada</div> <div>Transports Canada</div> </div> <div style="text-align: center;"> <b>AIRCRAFT CERTIFICATION DIVISION</b>  <b>APPROVED</b>  <i>By D. S. Austin</i>            Appl No. <u>SH10-48</u>            Appl Date <u>2010-10-21</u>            Issue No. <u>1</u>            Issue Date <u>2010-10-21</u>  <small>YY-MM-DD</small> </div>	ORIGINAL DATE: 23 September 2010  REVISION DATE:	<b>AERO DESIGN LTD.</b> 2013 - 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333
	SHEET 1 OF 1	<b>Robinson R44, R44 II</b> <b>Quick Release Cargo Basket</b> <b>Installation</b>
	<div style="display: flex; justify-content: space-between;"> <div style="font-size: 2em; font-weight: bold;">DCL906-2</div> <div style="text-align: right;">           Rev.   <div style="font-size: 3em; font-weight: bold;">0</div> </div> </div>	

AERO DESIGN LTD.

FMS906.90

## ROBINSON R44, R44 II

**ROTORCRAFT FLIGHT MANUAL SUPPLEMENT**  
for the  
**INSTALLATION of the AERO DESIGN**  
**QUICK RELEASE CARGO BASKET**

Supplemental Type Certificate No. SH10-48

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory.

Section V and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Robinson R44 or R44 II when fitted with the Quick Release Cargo Basket Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement, refer to the Approved Flight Manual and other approved Flight Manual Supplements.



Revision D  
22 September 2010

Page 1 of 7  
TRANSPORT CANADA APPROVED



**Table of Contents**

I	Limitations	3
II	Normal Procedures	3
III	Emergency Procedures	3
IV	Performance	3
V	Weight and Balance	4
VI	Installation / removal instructions	6

**Record of Revisions**

Revision	Issue Date	Pages Revised	Date Inserted	By
0	22 Sept 2010	Original Issue		

Revision 0  
22 September 2010

Page 2 of 7

## I LIMITATIONS

1. Only one basket may be installed at a time, on the right or left side.
2. The maximum load in the AERO Design Ltd. Quick Release Cargo Basket is 175 lb.
3. Flight operations limited to VFR conditions with AERO Design Ltd. Cargo Basket installed.
4. Maximum  $V_{NE}$  of 110 KIAS with either basket installed. Use R44 placarded  $V_{NE}$  or 110 KIAS whichever is lower.

## II NORMAL PROCEDURES

1. Pre-flight inspections:
  - a) Ensure that all cargo stored in the cargo basket is properly tied down and secured for flight.
  - b) Ensure that the lid of cargo basket is closed and secured.
  - c) Ensure the basket is locked in position on the beams. Pull up on the aft end of the basket to check.

### CAUTION

It is possible to exceed the lateral centre of gravity limits of the rotorcraft under some loading conditions. Pilots must ensure that lateral C of G is within limits when loading the basket.

## III EMERGENCY PROCEDURES

No change from basic Approved Flight Manual.

### CAUTION:

The rotorcraft glide angle is steeper than that of the basic helicopter when the AERO Design Ltd. Cargo Basket is installed.

## IV PERFORMANCE

Cruise performance and range will be reduced by approximately 14% percent with the cargo basket installed on either side.

Climb performance will be reduced by up to 300 fpm with the cargo basket installed on either side.

Revision 0  
22 September 2010

OCT 21 2010  
TRANSPORT CANADA APPROVED

Page 3 of 6

## V WEIGHT AND BALANCE

- The following weight and balance is for the quick release cargo basket configuration, installed in accordance with drawing 90601.

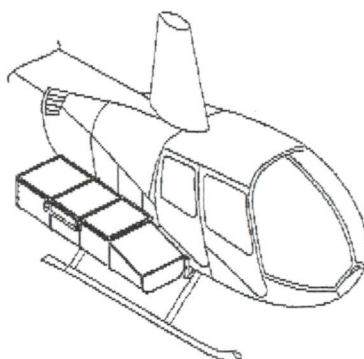


Figure 1 –Quick Release Cargo Basket Configuration

Standard P/N <sup>1</sup>	Description	Weight	Longitudinal		Lateral <sup>2,3</sup>	
		lb	arm in	moment in-lb	arm in	moment in-lb
90610-01-XX	Basket	41.8	112.4	4698.3	34.4	1437.9
90602-01-XX	Mounting Provisions	11.6	101.3	1174.5	7.2	84.0
90601-01-XX	<b>Basket Installation</b>	<b>53.4</b>	<b>110.0</b>	<b>5872.8</b>	<b>28.5</b>	<b>1521.9</b>
	Maximum Cargo (centred in basket)	175.0	112.4	19670.0	34.4	6020.0

Metric P/N <sup>1</sup>	Description	Weight	Longitudinal		Lateral <sup>2,3</sup>	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
90610-01-XX	Basket	18.9	2855	53999	874	16526
90602-01-XX	Mounting Provisions	5.3	2552	13396	184	965
90601-01-XX	<b>Basket Installation</b>	<b>24.2</b>	<b>2789</b>	<b>67394</b>	<b>724</b>	<b>17491</b>
	Maximum Cargo (centred in basket)	80.0	2855	228397	874	69901

<sup>1</sup> -XX indicates side. -01 is RH, -02 is LH.

<sup>2</sup> Lateral arm is negative on LH side.

<sup>3</sup> Longitudinal and Lateral moment arms are given only for the center of the Cargo Basket. Due to the length and position of the basket, some loading arrangements may require that actual moment arms be measured, to determine the correct moments about the center of gravity.

**CAUTION:**

It is possible to exceed lateral CG limits in some configurations.



## VI INSTALLATION / REMOVAL INSTRUCTIONS

The basket is installed in accordance with drawing 90601. The mounting provisions are installed in accordance with drawing 90602. Removal of the basket leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of basket and weight and balance amendment is required when basket is installed or removed.

1. Installation - Refer to Figure 2 and 3.
  1. At forward end of basket, set upper attachment fitting into keyway in forward beam. Allow basket to hang from fitting, rest aft end on ground.
  2. Raise aft end of basket to aft beam, sliding basket aft, and lift until lower attachment fitting hits stop over keyway.
  3. Push fitting into lower keyway, ensure top fitting enters top keyway, and slide basket down until locked.

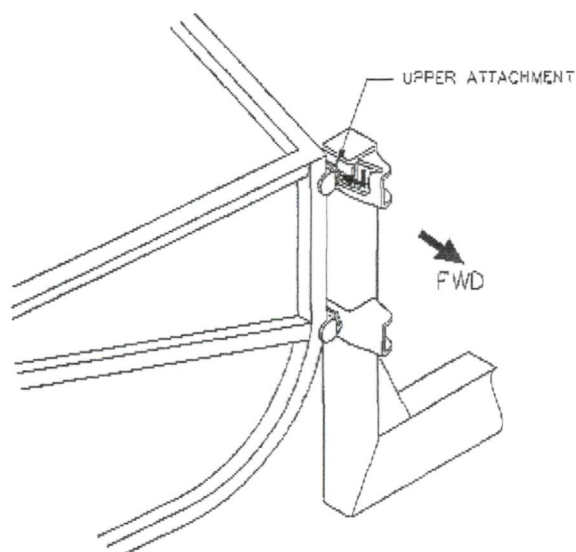
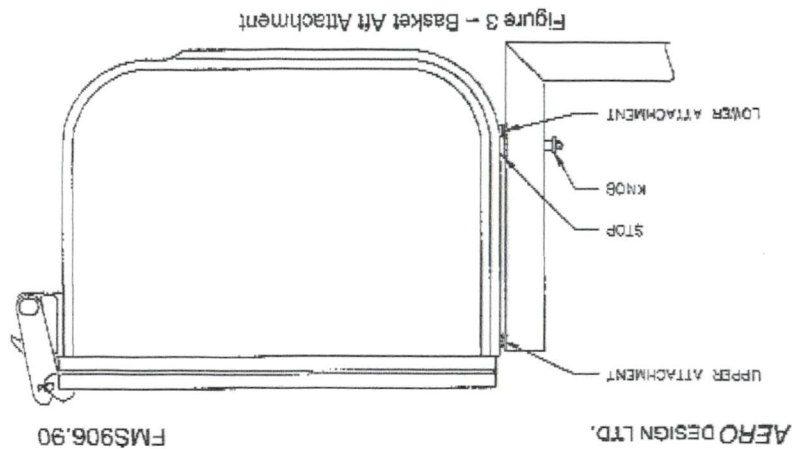


Figure 2 – Basket Forward Attachment

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22 September 2010

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2. Removal - Refer to Figure 2 and 3.
1. Pull knob at bottom end of aft beam and lift basket until attachment fittings are free of keyways. Rest aft end of basket on ground.
2. Slide basket forward and lift attachment fitting out of keyway on forward beam.



**ROBINSON**  
HELICOPTER COMPANY

---

**Safety Notice SN-13**

Issued: Jan 83 Rev: Jun 94

**DO NOT ATTACH ITEMS TO THE SKIDS**

The landing gear strut elbows have cracked on several helicopters when the pilot attempted to carry an external load strapped to the landing gear skids. The landing gear is optimized to take high "up" loads. Consequently, it has very low strength in the opposite or "down" direction. Also, even a small weight attached to the landing gear may change the natural frequency enough to cause high loads due to inflight vibration. Do not attempt to carry any external load or object attached to the landing gear.

-----  
Safety Notice SN-14 has been superseded by SN-17, SN-27 and SN-28

**Safety Notice SN-13**

Issued: Jan 83 Rev: Jun 94

**DO NOT ATTACH ITEMS TO THE SKIDS**

The landing gear strut elbows have cracked on several helicopters when the pilot attempted to carry an external load strapped to the landing gear skids. The landing gear is optimized to take high "up" loads. Consequently, it has very low strength in the opposite or "down" direction. Also, even a small weight attached to the landing gear may change the natural frequency enough to cause high loads due to inflight vibration. Do not attempt to carry any external load or object attached to the landing gear.

**ALTERATIONS TO AIRCRAFT**

The compactness and many unique design features of the R44 helicopter make any modification inadvisable. Dynamic characteristics and susceptibility to fatigue of the rotor, drive, and control systems make any modification to these systems extremely hazardous.

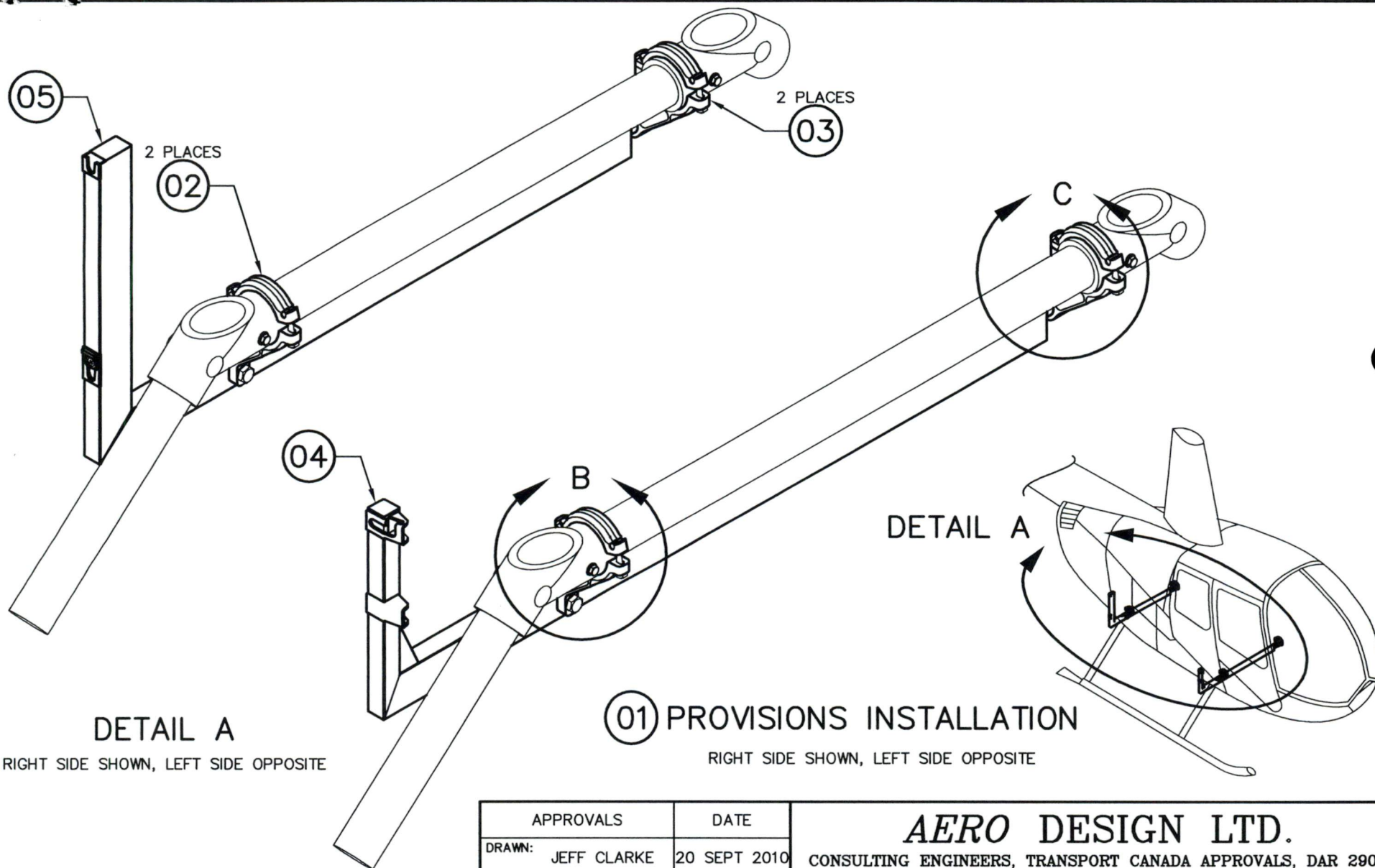
Also hazardous is installation of any electronic equipment or avionics not factory-approved and supplied. The compactness of the console and tunnel containing the controls and wire bundles makes installation of any additional wires likely to interfere with free control movement. Even more importantly, the electronic tachometers and governor are affected by other electronic devices. Their reliability and accuracy is essential for safe operation of the helicopter, and installation of an electrical device not tested and approved by the factory could easily result in a hazardous condition.

Because of these potential hazards, Robinson Helicopter Company does not approve any modification or alteration other than those which are factory-supplied and installed by factory-trained personnel.

ISSUED: 3 OCT 2002

B-4





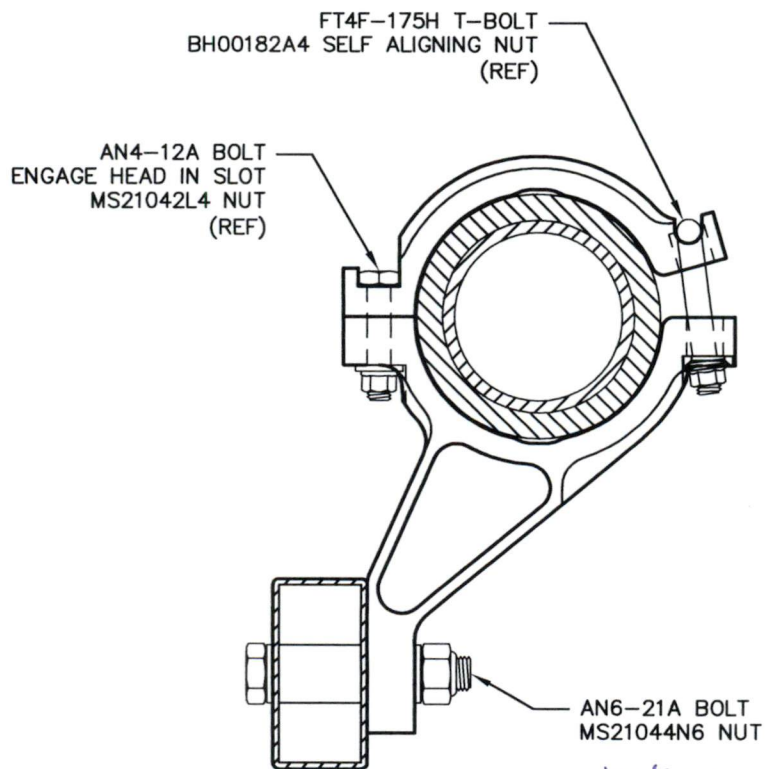
# DETAIL A

RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE

# 01 PROVISIONS INSTALLATION

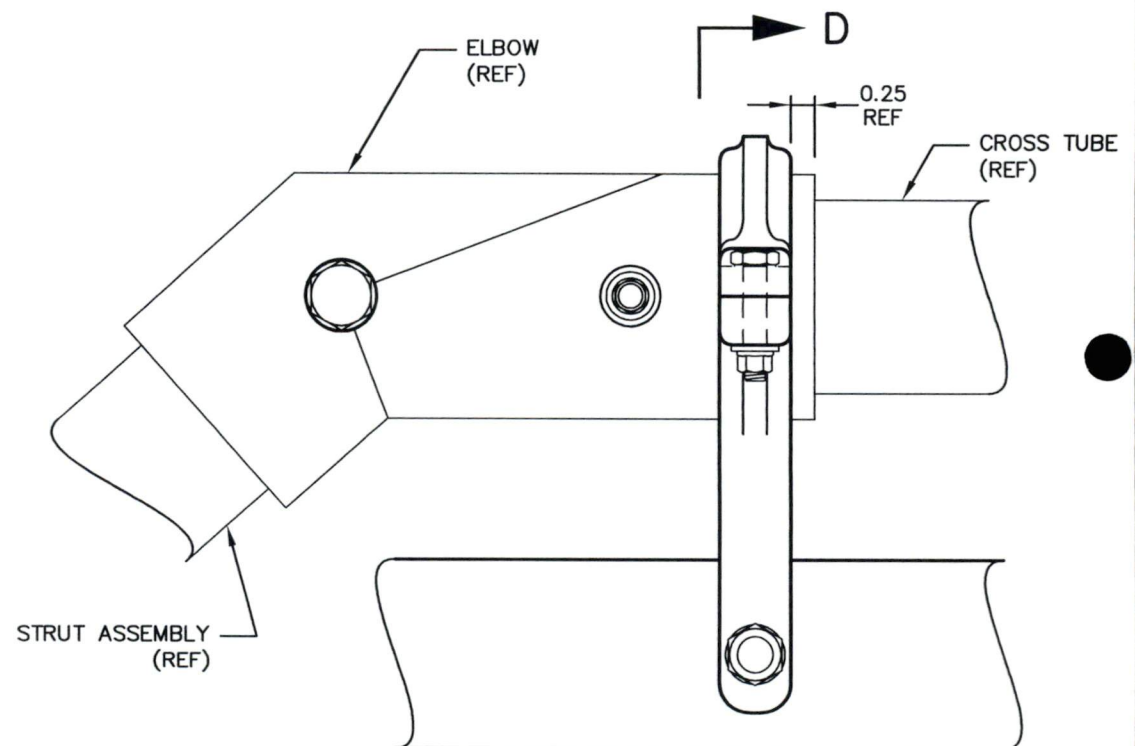
RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE

APPROVALS		DATE		<div>AERO DESIGN LTD.</div> <div>CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M 2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027      fax: (403) 250-8333      www.aerodesign.ca</div>							
DRAWN: JEFF CLARKE		20 SEPT 2010									
CHECKED: E. BURGOIN											
<div>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:</div> <div>DECIMALS                      ANGLES</div> <div>X.XXX    ±0.010                      ±1/2"</div> <div>X.XX     ±0.03</div> <div>X.X      ±0.1</div>				<div>ROBINSON R44, R44 II</div> <div>QUICK RELEASE CARGO BASKET</div> <div>ATTACHMENT PROVISIONS INSTALLATION</div>							
				NOT TO SCALE		DWG. SIZE		DWG. NO.		REV.	
				SHEET 1 OF 4		A4		90602		0	



### SECTION D-D

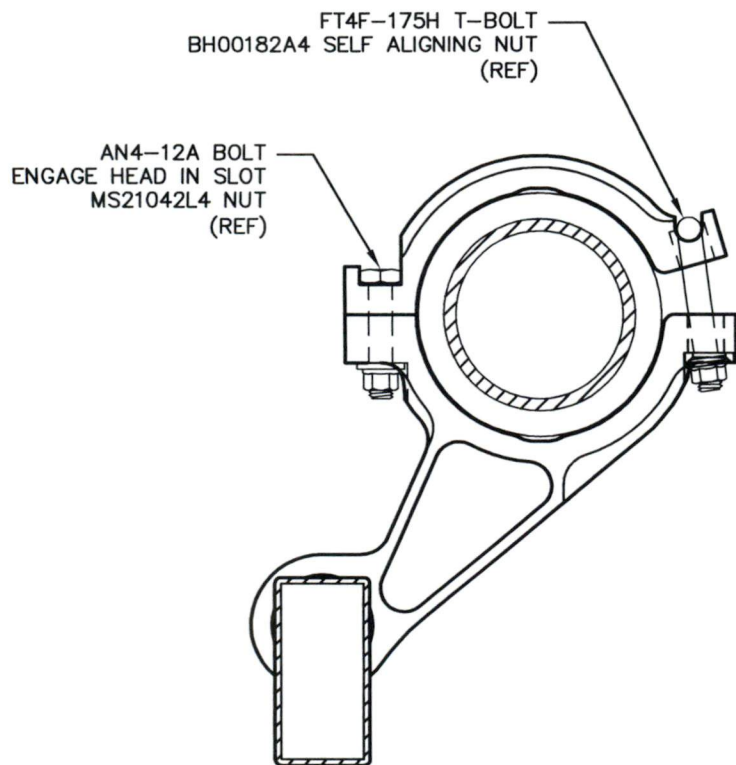
LOOKING INBOARD FROM RIGHT



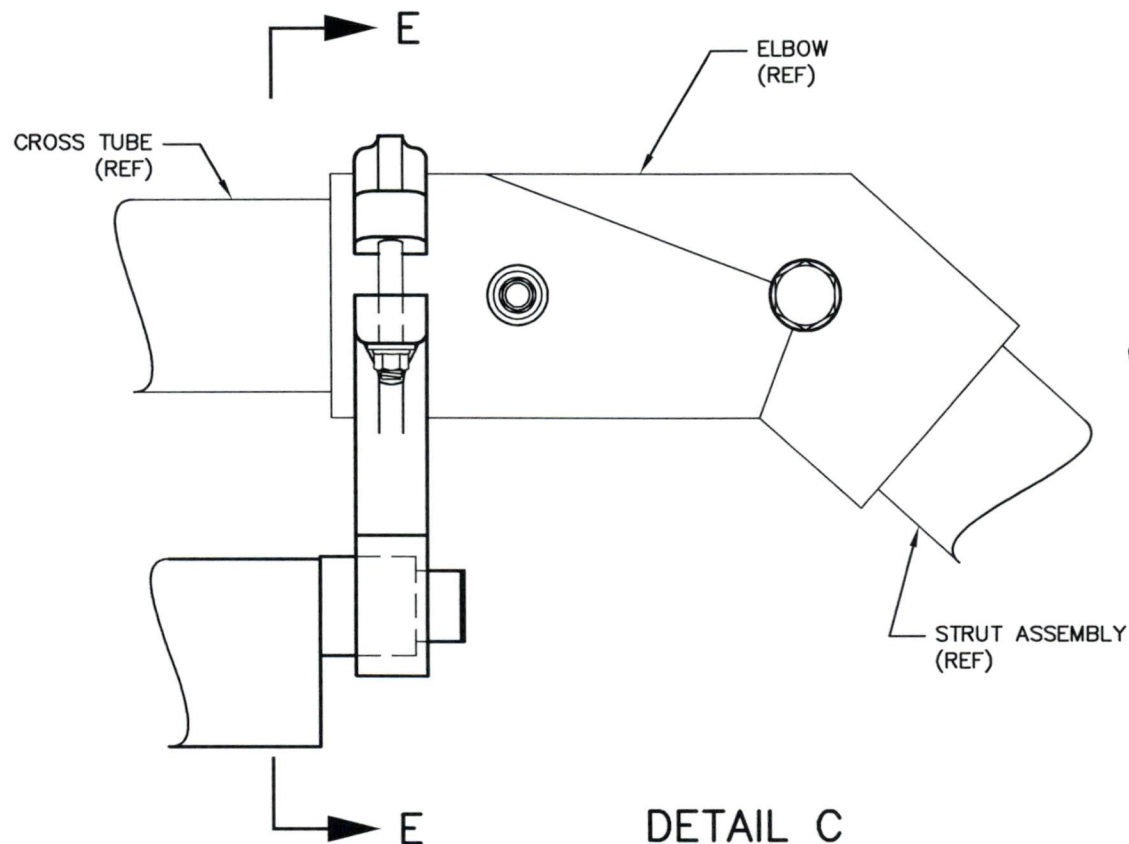
### DETAIL B

ATTACHMENT CLOSE TO BASKET, LOOKING AFT  
RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE  
FORWARD AND AFT INSTALLATION SAME

APPROVALS		DATE		<div>AERO DESIGN LTD.</div> <div>CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M</div> <div>2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7</div> <div>tel: (403) 250-8027      fax: (403) 250-8333      www.aerodesign.ca</div>			
DRAWN: JEFF CLARKE		20 SEPT 2010					
CHECKED: E. BURGOIN							
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: <div>DECIMALS      ANGLES</div> <div>X.XXX    ±0.010      ±1/2°</div> <div>X.XX     ±0.03</div> <div>X.X      ±0.1</div>				ROBINSON R44, R44 II			
				QUICK RELEASE CARGO BASKET			
				ATTACHMENT PROVISIONS INSTALLATION			
				NOT TO SCALE		DWG. SIZE	DWG. NO.
SHEET 2 OF 4		A4	90602	0			



SECTION E-E  
LOOKING OUTBOARD FROM RIGHT



DETAIL C  
ATTACHMENT FAR FROM BASKET, LOOKING AFT  
RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE  
FORWARD AND AFT INSTALLATION SAME

APPROVALS		DATE		<div>AERO DESIGN LTD.</div> <div>CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M 2013 – 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027      fax: (403) 250-8333      www.aerodesign.ca</div>							
DRAWN: JEFF CLARKE		20 SEPT 2010									
CHECKED: E. BURGOIN											
<div>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:</div> <div>DECIMALS                      ANGLES</div> <div>X.XXX ±0.010                  ±1/2°</div> <div>X.XX ±0.03</div> <div>X.X ±0.1</div>				<div>ROBINSON R44, R44 II</div> <div>QUICK RELEASE CARGO BASKET</div> <div>ATTACHMENT PROVISIONS INSTALLATION</div>							
				NOT TO SCALE		DWG. SIZE		DWG. NO.		REV.	
				SHEET 3 OF 4		A4		90602		0	



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REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	*	*	*

NOTES:

1. THIS INSTALLATION MAY BE APPLIED TO STANDARD OR EXTENDED SKID GEAR.  
THIS INSTALLATION IS NOT COMPATIBLE WITH FIXED OR POP-OUT FLOATS.
2. STRUT FAIRINGS (C082-XX) MUST BE REMOVED IF INSTALLED. REFER TO R44 MAINTENANCE MANUAL, SECTION 5.410.  
FORWARD CROSS TUBE COVER (C475-5) MUST BE REMOVED. LEAVE CHANNELS (C388-3) IN PLACE.
3. REMOVAL OF BEAMS LEAVING CLAMPS IN PLACE IS AN APPROVED CONFIGURATION FOR FLIGHT.
4. SEE FLIGHT MANUAL SUPPLEMENT, FMS906.90, FOR LIMITATIONS ON HELICOPTER OPERATIONS WITH CARGO BASKET INSTALLED.
5. SEE INSTRUCTIONS FOR CONTINUED AIRWORTHINESS, ICA906.90, FOR MAINTENANCE INFORMATION.

WEIGHT AND BALANCE

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
02/03	CLAMPS (4)	1.6	99.7	159.5	-0.7	-1.0
04/05	BEAMS (FORWARD AND AFT)	10.0	101.5	1015.0	8.5	85.0
01	PROVISIONS INSTALLATION (TOTAL)	11.6	101.3	1174.5	7.2	84.0

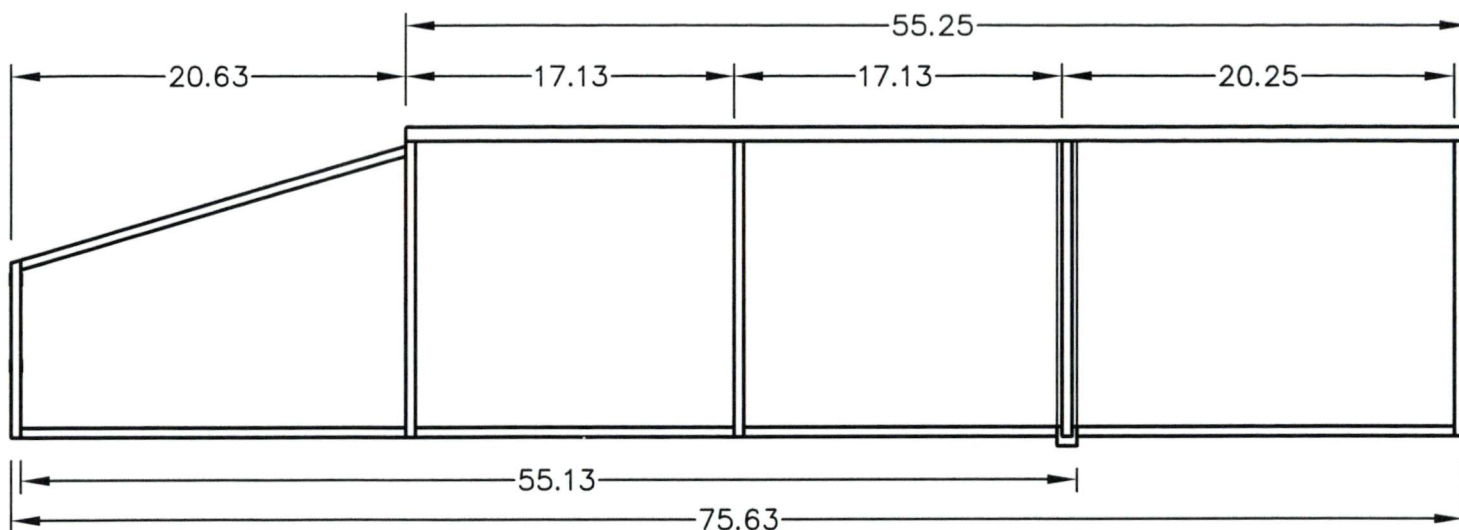
2	2	MS21044N6	NUT
4	4	AN960-616	WASHER
2	2	AN6-21A	BOLT
1	1	90631-01-00	05 AFT BEAM
1		90630-01-02	04 FORWARD BEAM (LH)
	1	90630-01-01	04 FORWARD BEAM (RH)
1		90620-02-02	03 CLAMP ASSEMBLY (FAR, LH)
	1	90620-02-01	03 CLAMP ASSEMBLY (FAR, RH)
2	2	90620-01-00	02 CLAMP ASSEMBLY (CLOSE)
		90602-01-02	01 PROVISIONS INST'N (LH)
		90602-01-01	01 PROVISIONS INST'N (RH)
-02	-01	PART NO.	ITEM DESCRIPTION
QTY.	LIST OF MATERIALS		

APPROVALS	DATE
DRAWN: JEFF CLARKE	20 SEPT 2010
CHECKED: E. BURGOIN	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:	
DECIMALS	ANGLES
X.XXX ±0.010	±1/2°
X.XX ±0.03	
X.X ±0.1	

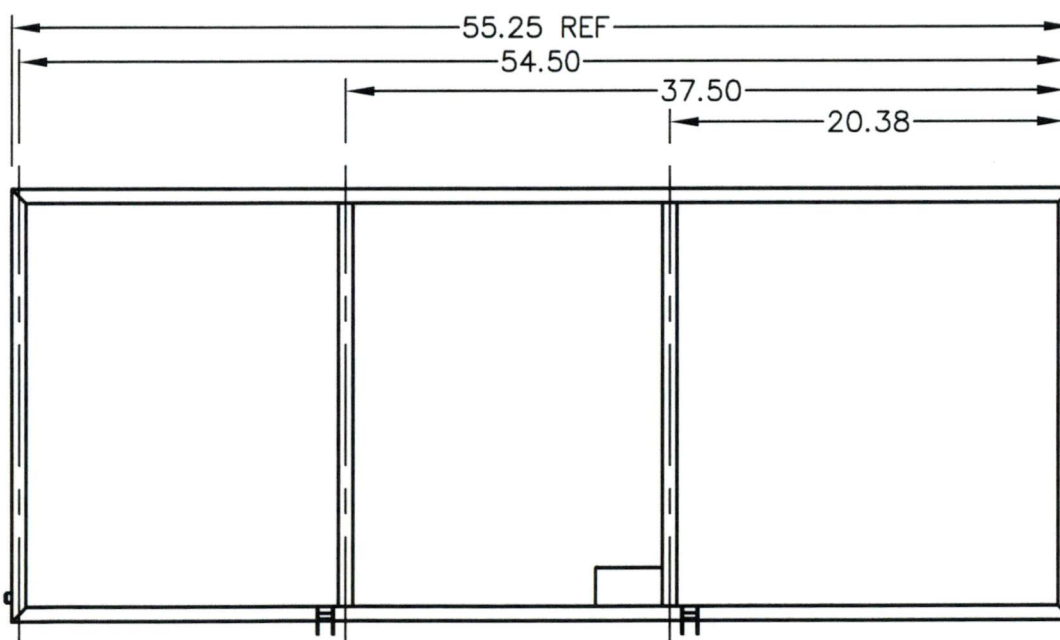
<b>AERO DESIGN LTD.</b> CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M 2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca			
<b>ROBINSON R44, R44 II</b> <b>QUICK RELEASE CARGO BASKET</b> <b>ATTACHMENT PROVISIONS INSTALLATION</b>			
NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.
SHEET 4 OF 4	A4	90602	0



REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE		



DRAWING 90611 - BASKET BODY ASSEMBLY

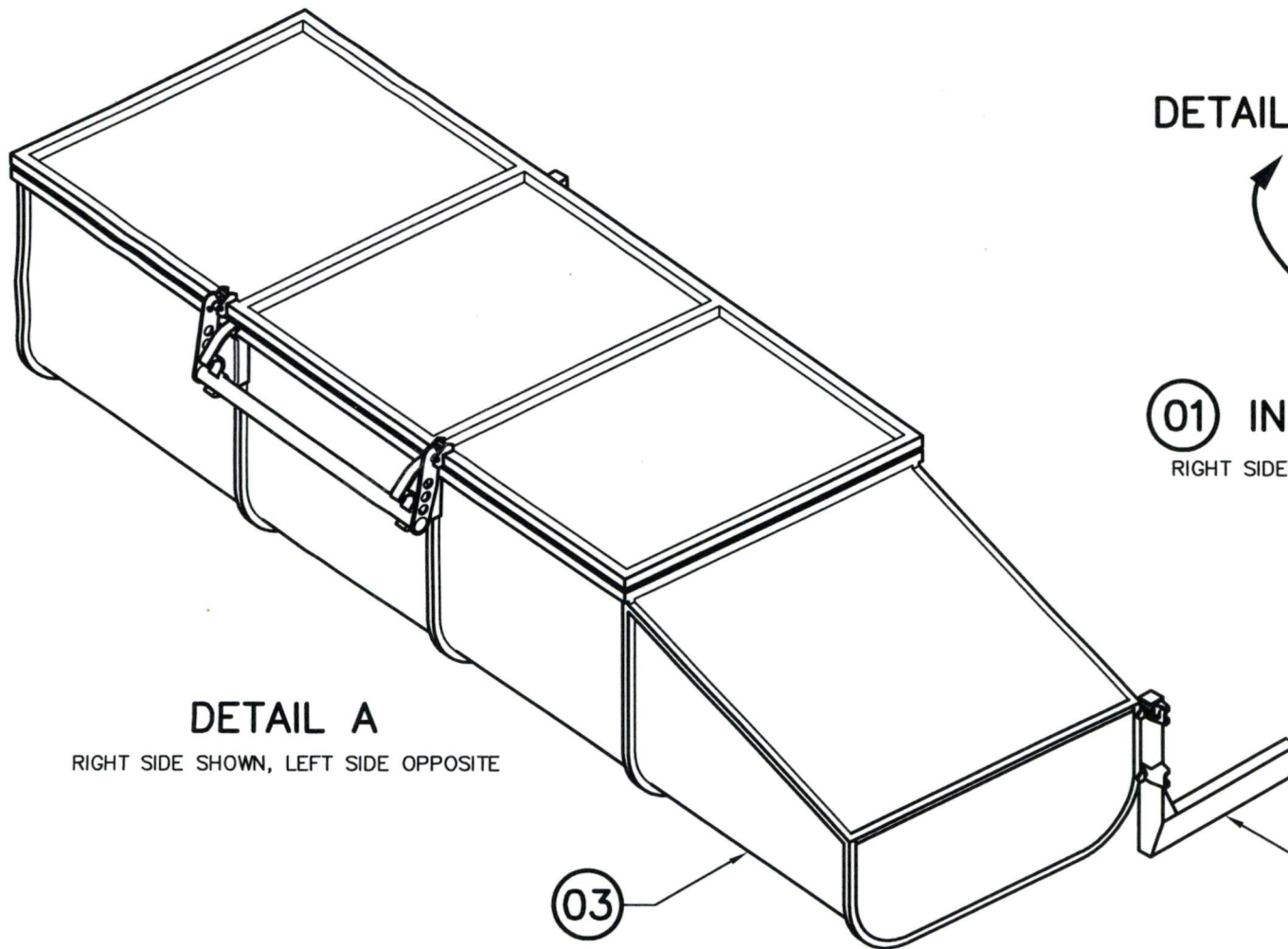


DRAWING 90612 - BASKET LID ASSEMBLY

#### NOTES

1. CARGO BASKET S/N 90602-01 IS A PROTOTYPE LEFT HAND BASKET.  
THE DIMENSIONS GIVEN ABOVE APPLY TO THIS S/N BASKET ONLY.  
THE REMAINDER OF CONSTRUCTION REMAINS IN ACCORDANCE WITH DRAWINGS 90611 AND 90612.

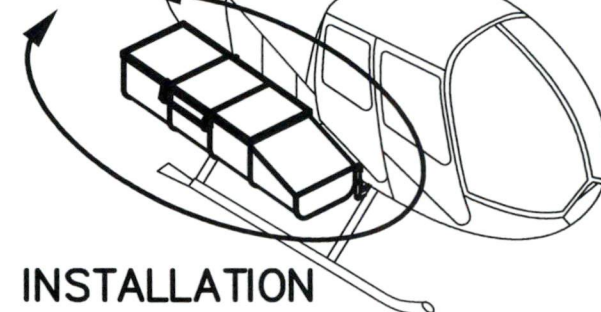
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	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS      ANGLES X.XXX ±0.010      ±1/2° X.XX ±0.03 X.X ±0.1				ROBINSON R44, R44 II QUICK RELEASE CARGO BASKET PROTOTYPE DISPOSITION			
	NOT TO SCALE		DWG. SIZE <b>A4</b>		DWG. NO. <b>PD906</b>		REV. <b>0</b>	
	SHEET 1 OF 1							



### DETAIL A

RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE

### DETAIL A



### 01 INSTALLATION

RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE

03

02

1		90610-01-02	03	CARGO BASKET ASS'Y (LH)
	1	90610-01-01	03	CARGO BASKET ASS'Y (RH)
1		90602-01-02	02	PROVISIONS INST'N (LH)
	1	90602-01-01	02	PROVISIONS INST'N (RH)
		90601-01-02	01	INSTALLATION (LH)
		90601-01-01	01	INSTALLATION (RH)
-02	-01	PART NO.	ITEM	DESCRIPTION
QTY.	LIST OF MATERIALS			

APPROVALS	DATE
DRAWN: JEFF CLARKE	20 SEPT 2010
CHECKED: E. BURGAIN	

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES.  
TOLERANCES ON:  
DECIMALS ANGLES  
X.XXX  $\pm 0.010$   $\pm 1/2^\circ$   
X.XX  $\pm 0.03$   
X.X  $\pm 0.1$

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tel: (403) 250-8027 fax: (403) 250-8333 [www.aerodesign.ca](http://www.aerodesign.ca)

### ROBINSON R44, R44 II QUICK RELEASE CARGO BASKET CARGO BASKET INSTALLATION

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.
SHEET 1 OF 2	A4	90601	0



REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	*	*	*

NOTES:

1. EXTERNAL ATTACHMENT PROVISIONS INSTALLED IN ACCORDANCE WITH DRAWING 90602 IS MANDATORY PREREQUISITE FOR THIS INSTALLATION.
2. THIS INSTALLATION MAY BE APPLIED TO STANDARD OR EXTENDED SKID GEAR. THIS INSTALLATION IS NOT COMPATIBLE WITH FIXED OR POP-OUT FLOATS.
3. SEE FLIGHT MANUAL SUPPLEMENT, FMS906.90, FOR LIMITATIONS ON HELICOPTER OPERATIONS WITH CARGO BASKET INSTALLED.
4. SEE INSTRUCTIONS FOR CONTINUED AIRWORTHINESS, ICA906.90, FOR MAINTENANCE INFORMATION.

## WEIGHT AND BALANCE

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
02	PROVISIONS INSTALLATION	11.6	101.3	1174.5	7.2	84.0
03	CARGO BASKET ASSEMBLY	41.8	112.4	4698.3	34.4	1437.9
01	CARGO BASKET INSTALLATION (TOTAL)	53.4	110.0	5872.8	28.5	1521.9
	CARGO	175 MAX	112.4	19670.0	34.4	6020.0

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APPROVALS	DATE
DRAWN: JEFF CLARKE	20 SEPT 2010
CHECKED: E. BURGAIN	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:	
DECIMALS	ANGLES
X.XXX ±0.010	±1/2°
X.XX ±0.03	
X.X ±0.1	

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### ROBINSON R44, R44 II QUICK RELEASE CARGO BASKET CARGO BASKET INSTALLATION

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.	
SHEET 2 OF 2	A4	90601	0	

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE		

#### NOTES

- ENGRAVE 0.007 DEEP AS FOLLOWS:  
"QUICK RELEASE BASKET" - 0.125 HIGH  
"ROBINSON R44 SERIES" - 0.080 HIGH  
"S/N 90601-XX" - 0.080 HIGH  
"MAXIMUM PERMISSIBLE LOAD" - 0.125 HIGH  
"175 LBS/80 KG" - 0.200 HIGH  
"AERO DESIGN LTD." - 0.125 HIGH  
"CALGARY, ALBERTA, CANADA" - 0.080 HIGH  
"403-250-8027" - 0.080 HIGH
- ON 90627-02: S/N IS 90602-XX.

DRILL #30 (0.129)  
4 PLACES



01 PLACARD  
02 PLACARD

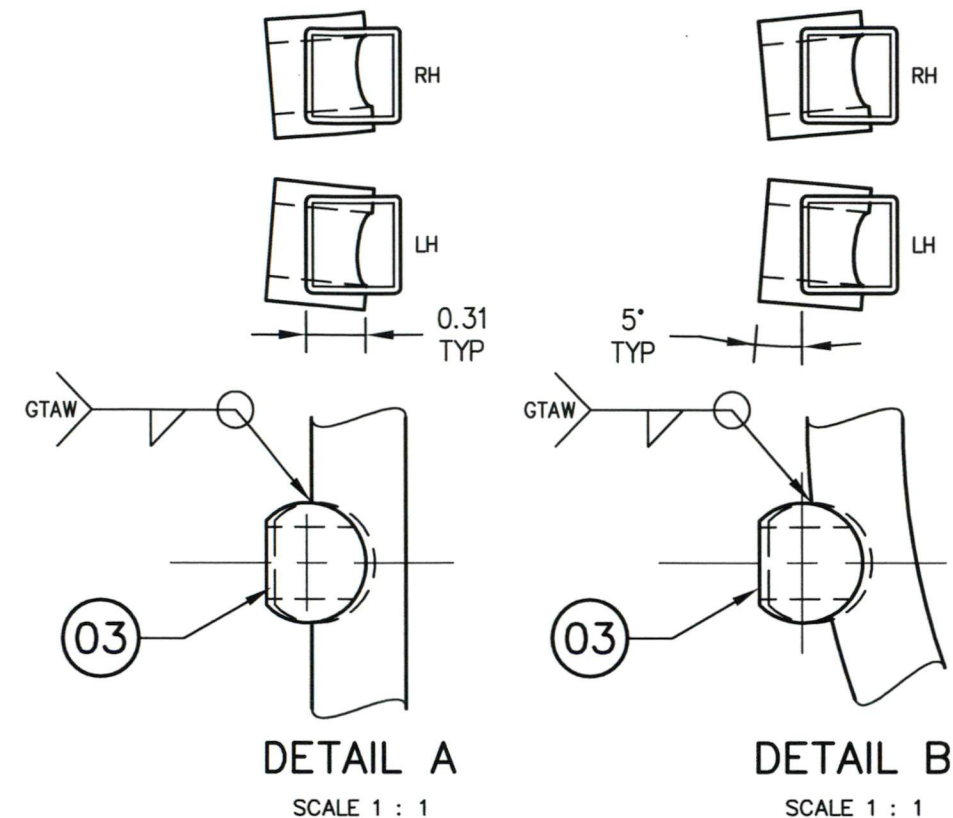
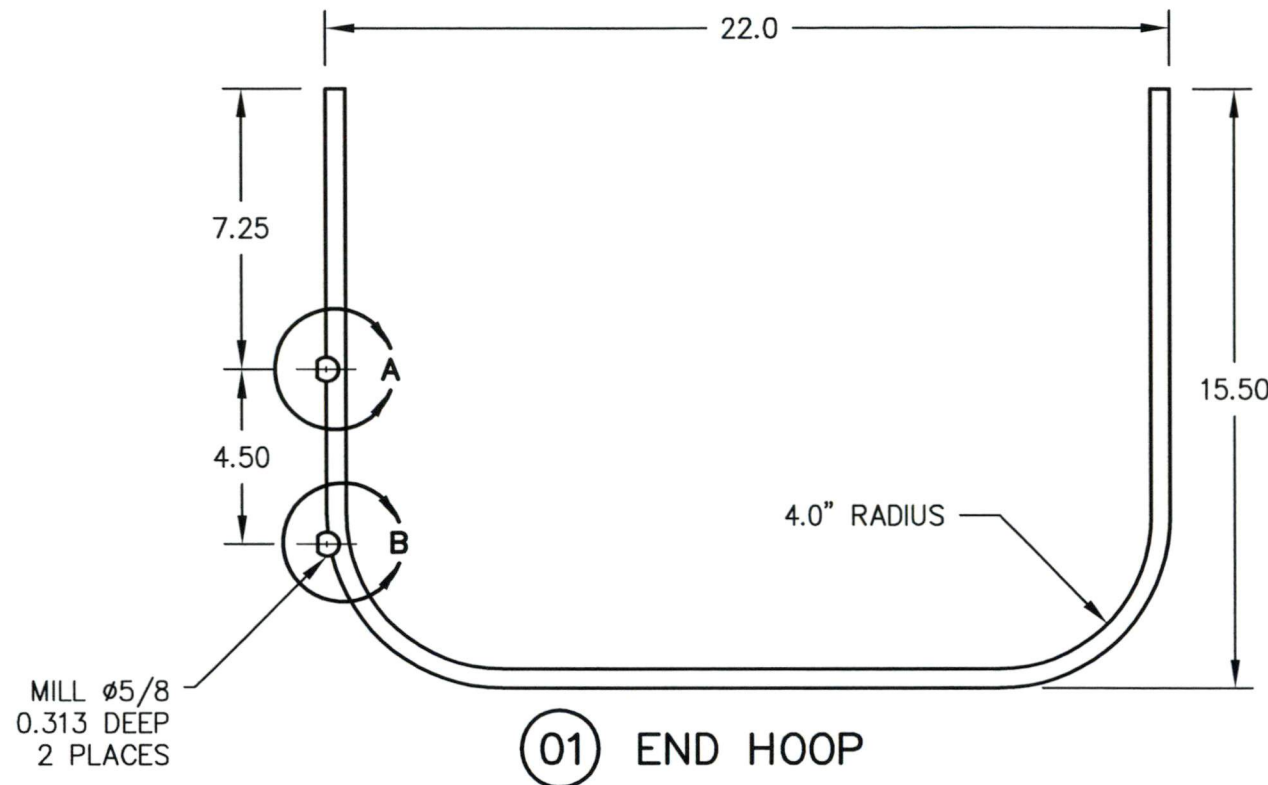
90627-02	02	PLACARD	6061-T6 ALUMINUM	QQ-A-250/11	0.063 SHEET
90627-01	01	PLACARD	6061-T6 ALUMINUM	QQ-A-250/11	0.063 SHEET
PART NO.	ITEM	DESCRIPTION	MATERIAL	MATERIAL SPEC	STOCK SIZE

#### LIST OF MATERIALS

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	DRAWN: JEFF CLARKE		13 SEPT 2010		CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M						
	CHECKED: E. BURGOIN				2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7						
					tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca						
					ROBINSON R44, R44 II						
				QUICK RELEASE CARGO BASKET							
				PLACARD							
				SCALE 1 : 1		DWG. SIZE		DWG. NO.		REV.	
				SHEET 1 OF 1		A1		90627		0	



REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE		



#### NOTES

1. REMOVE ALL BURRS AND BREAK SHARP EDGES.
2. DRILL 3/32 VENT HOLE IN BOTTOM OF HOOP FOR VENTING OF WELD GASES
3. WELDING OF STEEL LUGS TO BE COMPLETED BY GTAW METHOD TO AMS2685C. WELDING ROD SHALL CONFORM TO ER70S-2 OR EQUIVALENT.

2	69823-02	03	LUG	1018 MILD STEEL	AISI 1010/1020	5/8 DIA ROD
	90622-01-02	01	LH FWD ATTACHMENT HOOP	4130 STEEL COND. N	MIL-T-6736	1/2 x 0.035 SQR. TUBE
	90622-01-01	01	RH FWD ATTACHMENT HOOP	4130 STEEL COND. N	MIL-T-6736	1/2 x 0.035 SQR. TUBE
01	PART NO.	ITEM	DESCRIPTION	MATERIAL	MATERIAL SPEC	STOCK SIZE
QTY	LIST OF MATERIALS					

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	DRAWN: JEFF CLARKE		10 APR 2006					
	CHECKED: E. BURGAIN							
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS                      ANGLES X.XXX    ±0.010                      ±1/2" X.XX     ±0.03 X.X      ±0.1				ROBINSON R44, R44 II QUICK RELEASE CARGO BASKET FORWARD ATTACHMENT HOOP FABRICATION			
					SCALE 1 : 5 SHEET 1 OF 1		DWG. SIZE LGL	

# R44 weight and balance

Basket Empty	weight	longitudinal		lateral	
		arm	moment	arm	moment
Empty Weight	1510.75	107.3	162142	0.1	151
Pilot (RH)	200	49.5	9900	12.2	2440
LH Fwd Pass	200	49.5	9900	-10.4	-2080
RH Aft Pass	0	79.5	0	12.2	0
LH Aft Pass	0	79.5	0	-12.2	0
Main fuel	150	106	15900	-13.5	-2025
Aux fuel	75	102	7650	13	975
Attachments	11.6	101.3	1175.08	7.2	83.52
Basket (small)	41.8	112.4	4698.32	34.4	1437.92
Cargo	0	112.4	0	34.4	0
Total	2189.15	96.55	211365.4	0.45	982.44

150 lb min without extra ballast

30.6 gal max usable @ 6 lb/gal

18.3 gal max usable @ 6 lb/gal

183.6 max

109.8 max

Basket Empty	weight	longitudinal		lateral	
		arm	moment	arm	moment
Empty Weight	1510.75	107.3	162142	0.1	151
Pilot (RH)	200	49.5	9900	12.2	2440
LH Fwd Pass	200	49.5	9900	-10.4	-2080
RH Aft Pass		79.5	0	12.2	0
LH Aft Pass		79.5	0	-12.2	0
Main fuel	150	106	15900	-13.5	-2025
Aux fuel	75	102	7650	13	975
Attachments	11.6	101.3	1175.08	7.2	83.52
Basket (small)	41.8	112.4	4698.32	34.4	1437.92
Cargo	175	112.4	19670	34.4	6020
Total	2364.15	97.72	231035.4	2.96	7002.44

150 lb min without extra ballast

30.6 gal max usable @ 6 lb/gal

18.3 gal max usable @ 6 lb/gal

## DECLARATION OF CONFORMITY WITH THE CERTIFICATION BASIS

In accordance with Canadian Aviation Regulations Subpart 521, I hereby declare that the design of the Quick Release Mounting Provisions and Cargo Basket Installation, as detailed in the data approved by Transport Canada approval SH10-48, Issue 1, has been demonstrated to conform to the best of my knowledge to the basis of certification established by the Minister for that approval in file C-10-0741.

AERO Design Ltd.

per:   
Signature

E. Burgoin  
Print Name

Consultant  
Title

12 October, 2010  
Date

# FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS			AE-100 No.: AE906-1 Initial Issue Date: 12 October, 2010 Revision: 0 Revision Date: Approval No.: SH10- Delegation No.: 290M Delegate Name: E. Burgoin Company: AERO Design Ltd.
Aircraft Mfr: Robinson Aircraft Model: R44, R44 II Registration: ALL ELIGIBLE	Model / Type Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>		
LIST OF APPROVED REPORTS AND DATA			
Document Number	Revision	Document Title	Compliance Status
DCL906-1	0	Document Control List and all documents referred to therein	As per Compliance Program, CP906, Revision 0
DCL906-11	0	Document Control List and all documents referred to therein	
ER906.01	0	Engineering Report	
90602	0	Quick Release Mounting Provisions Installation	
90620	0	Clamp Assemblies	
90630	0	Forward Beam Assembly	
90631	0	Aft Beam Assembly	
DATA APPROVED BY TRANSPORT CANADA			
FMS906.90	0	Flight Manual Supplement	
ICA906.91	0	Instructions for Continued Airworthiness	
CERTIFICATION  UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED Nil HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIREMENTS.			
I THEREFORE <input type="checkbox"/> RECOMMEND FOR APPROVAL OF THESE DATA <input checked="" type="checkbox"/> APPROVE THESE DATA			
 E. Burgoin, DAR 290M			



# FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS		AE-100 No.: AE906-2 Initial Issue Date: 12 October, 2010 Revision: 0 Revision Date:
Aircraft Mfr: Robinson Aircraft Model: R44, R44 II Registration: ALL ELIGIBLE	Model / Type Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>	Approval No.: SH10- Delegation No.: 290M Delegate Name: E. Burgoin Company: AERO Design Ltd.

## LIST OF APPROVED REPORTS AND DATA

Document Number	Revision	Document Title	Compliance Status
DCL906-2	0	Document Control List and all documents referred to therein	As per Compliance Program, CP906, Revision 0
DCL906-12	0	Document Control List and all documents referred to therein	
ER906.01	0	Engineering Report	
90601	0	Quick Release Cargo Basket Installation	
90610	0	Basket Assembly	
90611	0	Basket Body Assembly	
90612	0	Lid Assembly	
90621	0	Aft Attachment Hoop	
90622	0	Forward Attachment Hoop	
90627	0	Placard	
69823	1	Lug	
49210	0	Hoop	
49215	0	Spacer	
49216	0	Spacer	
84255	0	Handle Assembly	
84261	0	Handle Bar Assembly	
84262	0	Handle Bracket Assembly	
84265	0	Handle Lever	
84267	0	Handle Bracket	
84272	0	Bushing	
36273	1	Lid Bracket	
36274	2	Bushing	
36275	3	Bushing	
36277	0	Handle Bar	
36278	2	Spring	
36280	2	Brace Assembly	
DATA APPROVED BY TRANSPORT CANADA			
FMS906.90	0	Flight Manual Supplement	
ICA906.92	0	Instructions for Continued Airworthiness	

## CERTIFICATION

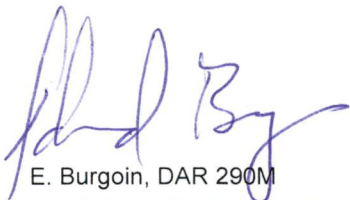
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I THEREFORE ☐ RECOMMEND FOR APPROVAL OF THESE DATA

☒ APPROVE THESE DATA

E. Burgoin, DAR 290M

# FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS		AE-100 No.: AE704 Initial Issue Date: 25 May, 2006  Revision: <b>6</b> Revision Date: 20 October 2010  Approval No.: SH10-48  Delegation No.: 290M Delegate Name: E. Burgoin Classification of Designee: Employer: AERO Design Ltd.	
Aircraft Mfr: Robinson R44 Aircraft Model: All Eligible Registration:		Model Type Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>	
LIST OF APPROVED REPORTS AND DATA			
Document Number	Document Title		Compliance Status
DCL704 70402 70403 70405 70408 70428 70438	Revision 6 Revision 1 Revision 3 Revision 2 Revision 0 Revision 0 Revision 0	Document Control List and all documents referred to therein Lid Door Modification Auxiliary Latch Modification Lid Step Modification Hangar Wheel Installation Hangar Wheel Assembly Hangar Wheel Parts	
		DATA APPROVED BY TRANSPORT CANADA	
CERTIFICATION			
UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED Nil HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIRMENTS.			
I THEREFORE <input type="checkbox"/> RECOMMEND FOR APPROVAL OF THESE DATA <input checked="" type="checkbox"/> APPROVE THESE DATA			
 E. Burgoin, DAR 290M			

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>INSTALLATION DOCUMENTS</b>		
90601	Quick Release Cargo Basket Installation	0
ICA906.92	Instructions for Continued Airworthiness	0
FMS906.90	Flight Manual Supplement	0
<b>FABRICATION DOCUMENTS</b>		
DCL906-12	Document Control List for Quick Release Cargo Basket	0
<b>ENGINEERING DOCUMENTS</b>		
APPROVAL:	ORIGINAL DATE: 23 September 2010 REVISION DATE:	<b>AERO DESIGN LTD.</b> 2013 – 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333
	SHEET 1 OF 1	<b>Robinson R44, R44 II Quick Release Cargo Basket Installation</b>
	<b>DCL906-2</b>	Rev. <b>0</b>

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>		
90620	Clamp Assemblies	0
90630	Forward Beam Assembly	0
90631	Aft Beam Assembly	0
<b>ENGINEERING DOCUMENTS</b>		
ER906.01	Engineering Report	0
FTP906.03	Flight Test Report	0
APPROVAL:	ORIGINAL DATE: 23 September 2010 REVISION DATE:	<b>AERO DESIGN LTD.</b> 2013 – 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333 <a href="http://www.aerodesign.ca">www.aerodesign.ca</a>
	SHEET 1 OF 1	<b>Robinson R44, R44 II</b> <b>Quick Release Mounting</b> <b>Provisions Fabrication</b>
	<b>DCL906-11</b>	Rev. <b>0</b>



# DOCUMENT CONTROL LIST

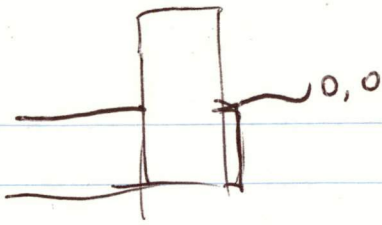
DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>INSTALLATION DOCUMENTS</b>		
90602	Quick Release Mounting Provisions Installation	0
ICA906.91	Instructions for Continued Airworthiness	0
FMS906.90	Flight Manual Supplement	0
<b>FABRICATION DOCUMENTS</b>		
DCL906-11	Document Control List for External Attachment Provisions Fabrication	0
<b>ENGINEERING DOCUMENTS</b>		
APPROVAL:	ORIGINAL DATE: 23 September 2010  REVISION DATE:	<b>AERO DESIGN LTD.</b> 2013 – 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333 <a href="http://www.aerodesign.ca">www.aerodesign.ca</a>
	SHEET 1 OF 1	<b>Robinson R44, R44 II</b> <b>Quick Release Mounting</b> <b>Provisions Installation</b>
	<div style="display: flex; justify-content: space-between; align-items: center;"> <span style="font-size: 2em; font-weight: bold;">DCL906-1</span> <div style="text-align: right;">           Rev.  <span style="font-size: 2em; font-weight: bold;">0</span> </div> </div>	

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>		
90610	Basket Assembly	0
90611	Basket Body Assembly	0
90612	Lid Assembly	0
90621	Aft Attachment Hoop	0
90622	Forward Attachment Hoop	0
90627	Placard	0
69823	Lug	1
49210	Hoop	0
49215	Spacer	0
49216	Spacer	0
84255	Handle Assembly	0
84261	Handle Bar Assembly	0
84262	Handle Bracket Assembly	0
84265	Handle Lever	0
84267	Handle Bracket	0
84272	Bushing	0
36273	Lid Bracket	1
36274	Bushing	2
36275	Bushing	3
36277	Handle Bar	0
36278	Spring	2
36280	Brace Assembly	2
<b>ENGINEERING DOCUMENTS</b>		
ER906.01	Engineering Report	0
FTP906.03	Flight Test Plan/Report	0
APPROVAL:	ORIGINAL DATE: 23 September 2010 REVISION DATE:	<b>AERO DESIGN LTD.</b> 2013 – 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333
	SHEET 1 OF 1	<b>Robinson R44, R44 II Quick Release Cargo Basket Basket Assembly</b>
	Rev.	
	<b>DCL906-12</b>	<b>0</b>

# DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
<b>FABRICATION DOCUMENTS</b>		
70401	Open Forward End Modification (Bell 206L/407 Fixed and McDonnell Douglas MD600N Quick Release Only)	1
70402	Lid Door Modification	1
70403	Auxiliary Latch Modification	3
70404	Open Forward End Modification (Bell 206L/407 Quick Release Only)	1
70405	Lid Step Modification	2
70406	Open Forward End Modification (Eurocopter AS350/AS355 and Bell 206B Quick Release Only)	0
70407	Open Forward End Modification (Eurocopter EC135 Quick Release Only)	0
70408	Installation, Hanger Wheel	0
70428	Assembly, Hanger Wheel	0
70438	Parts, Hanger Wheel	0
<b>ENGINEERING DOCUMENTS</b>		
ER704.02	Engineering Report	0
APPROVAL:	ORIGINAL DATE: 10 May 2006	<b>AERO DESIGN LTD.</b> 2013 – 39 <sup>th</sup> Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333
	REVISION DATE: April 29, 2010	
	SHEET 1 OF 1	<b>Cargo Basket Modifications</b>
	<b>DCL704</b>	Rev. <b>6</b>



Start @ Y 0.344 X + 0.25

to X - 0.625

to Y - 0.600

to Y + 0.406

to X 0.25

R44

BASKET w/ WHEEL = 42.8

Wheel = 1.0 lb.

FRONT Beam 4.6 lb

AFT beam 4.4 lb

Pair fittings 0.8 lb.

13

41.8

4.6

4.4

0.8

0.8

52.4

52.5

+ 2 x 3/8 bolts/nuts

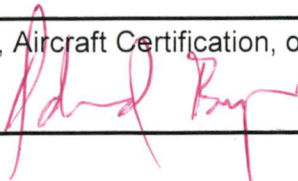


## STAFF INSTRUCTION 513-008

### Flight Test Division Support of Regional Flight Test Activities

#### Appendix A – Statement of Suitability for Flight Test

Aircraft Type/Model	Robinson R44 II
Registration	C-FHZY
Serial Number	11196
Description of Design Change(s)	Installation of Aero Design Ltd. Quick Release Mounting Provisions, Quick Release Cargo Basket
Design Drawings	See Document Control Lists DCL906-1, DCL906-2, DCL906-11, DCL906-12

Statement of Suitability for Flight Test	
This is to certify that I have reviewed the subject design change and that I have reasonable assurance that compliance could be found with all applicable design requirements, except for those requirements that will be substantiated by flight-testing. I consider the aircraft to be safe for flight.	
Regional Engineer, Aircraft Certification, or Authorized Person 	Date 30 Sept 2010



Transport Canada  
Transports Canada

# FLIGHT AUTHORITY

AUTORITÉ DE VOL

To - À: Can-Oz Heli Services Inc.

Box 68125, 28 Crowfoot Terrace, N.W., Calgary, Alberta, T3G 3N8

Nationality and Registration Marks Marques de nationalité et d'immatriculation	Aircraft Manufacturer and Model Constructeur et modèle de l'aéronef	Aircraft Serial Number Numéro de série de l'aéronef
Canadian C-FHZY	Robinson R44 II	11196

<input type="checkbox"/> CERTIFICATE OF AIRWORTHINESS In respect of the noise emission standards this aircraft: En vertu des normes d'émission de bruit, l'aéronef mentionné:	<input type="checkbox"/> CERTIFICAT DE NAVIGABILITÉ is not required to comply with requirements n'est pas obligé de satisfaire aux exigences <input type="checkbox"/> complies with the requirements specified below satisfait aux exigences précisées ci-dessous
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<input type="checkbox"/> SPECIAL CERTIFICATE OF AIRWORTHINESS Provisional - Provisoire Restricted - Restreint	<input type="checkbox"/> CERTIFICAT SPÉCIAL DE NAVIGABILITÉ Amateur-Built - Construction amateur Limited - Limité	<input type="checkbox"/> Owner Maintenance - Maintenance par le propriétaire
This document is subject to the following operating conditions of issue: Le présent document est assujéti aux conditions d'exploitation suivantes :		Indicate Numbers: Inscrire les numéros :
The aircraft may only be operated from: L'aéronef ne peut être exploité qu'à partir de :		Gross take-off weight not to exceed: Ne pas excéder la masse maximale brute au décollage : _____ lb _____ kg <input type="checkbox"/> As per Flight Manual - Selon le manuel de vol

<input checked="" type="checkbox"/> Flight Permit - Specific Purpose Permis de vol - Fin Spécifique	<input type="checkbox"/> Flight Permit - Experimental Permis de vol - Expérimental
<input type="checkbox"/> Ferry Flight Vol de convoyage	<input type="checkbox"/> Demonstration, market survey or crew training Vol de démonstration, étude de marché ou formation d'équipage
<input type="checkbox"/> Importation or exportation flight Vol pour fin d'importation ou d'exportation	
<input checked="" type="checkbox"/> Other temporary purposes (Specify) Pour d'autres fins temporaires (Préciser)	Flight Test I.A.W. Flight Test Plan FTP906.03

Flight from - Vol de Airdrie Airport	To - À Local	To - À Airdrie Airport
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This document is subject to the following operating conditions of issue: The aircraft may only be operated from: L'aéronef ne peut être exploité qu'à partir de :	Le présent document est assujéti aux conditions d'exploitation suivantes :	Indicate Numbers: Inscrire les numéros : See Attached 24-0090
Gross take-off weight not to exceed: Ne pas excéder la masse maximale brute au décollage : _____ lb _____ kg <input checked="" type="checkbox"/> As per Flight Manual - Selon le manuel de vol		

This document is valid for the number of days indicated on the right, following the date of issue. Where pertinent, a replacement flight authority will be issued to you.	Le présent document reste valide pendant le nombre de jours indiqués à droite qui suivent la date de délivrance. S'il y a lieu, une autorité de vol de remplacement vous sera délivré.	Days - Jours 30
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For the Minister of Transport - Pour le ministre des Transports Murray Wickens	Date of Issue - Date de délivrance (yyyy-mm-dd / aaaa-mm-jj) 2010-09-29	Region - Région PNR
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Fee paid - Montant versé \$ 45.00	<input checked="" type="checkbox"/> Cash Comptant	<input type="checkbox"/> Cheque Chèque	Receipt No. N° du reçu 1785884
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Transport  
Canada

Transports  
Canada

Can-Oz Heli Services Inc.

Box 68125, 28 Crowfoot Terrace, N.W., Calgary, AB.

### Operating Conditions - Conditions d'exploitation

Nationality and Registration Marks Marques de nationalité et d'immatriculation  C-FHZY	Aircraft Manufacturer and Model Constructeur et modèle de l'aéronef  Robinson R44 II	Aircraft Serial Number Numéro de série de l'aéronef  11196
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Operating Conditions - Conditions d'exploitation

**ADDITIONAL LIMITATIONS**

1. Flight Test I.A.W. Flight Test Plan FTP906.03.
2. Use as a commercial aircraft prohibited.
3. Crew members only - no passengers, except those persons whom the pilot-in-command determines as having a bona fide interest in the demonstration.
4. Flight into known or predicted icing conditions prohibited.
5. Day VFR only.
6. Flight to Vd is permitted.
7. Draft Flight Manual supplement FMS 906.90 to be carried on board.
10. No flight over built up areas.
11. Aircraft shall be certified as safe and fit for flight by a qualified AME in the aircraft journey log prior to flight.

**NOTE 1:** The aircraft must be operated in compliance with the applicable standards of airworthiness.  
L'aéronef doit être exploité conformément aux normes de navigabilité applicables.

Seal  
Sceau



2010-09-29

Date of Issue  
Date de délivrance  
(yyyy-mm-dd / aaaa-mm-jj)

Murray Wickens

For the Minister of Transport - Pour le ministre des Transports



## 5.0 FLIGHT TESTS

One flight is required for each of the conditions listed in 4.5 above.

The flights are to be conducted as follows:

Take off and establish cruise at 50 kts. Increase speed in 10 kt increments up to Vne. Recover from Vne, then accelerate to Vd (1.1 x Vne).

Vne as follows:

NEVER EXCEED SPEED - KIAS										
2200 LB TOGW & BELOW										
PRESS ALT-FT	OAT - °C									
	-30	-20	-10	0	10	20	30	40		
SL										
2000			130				127	123		
4000					126	122	118	114		
6000				126	122	117	113	108	103	
8000	126	122	117	112	107	101	96	91		
10000	117	112	106	101	95	90	85			
12000	107	101	95	89						
14000	95	89								
OVER 2200 LB TOGW, SUBTRACT 10 KIAS FOR AUTOROTATION, SUBTRACT 30 KIAS										

V<sub>D</sub> 140  
 V<sub>NE</sub> 126  
 BELOW 2200 LB TO  
 TEMP 15°C  
 29 SEPT 2010 3:00 PM  
 4000 - 5000 ASL

Note that gross weight with basket loaded will exceed 2200 lbs, reduce Vne by 10 kts accordingly.

## 6.0 RECORDING OF RESULTS

Check (✓) if acceptable.

	Airspeed (kts)										
Configuration	50	60	70	80	90	100	110	120	Vne	Vd	
Right, empty	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Right, loaded	OK						OK	OK	OK	OK	
Left, empty	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
Left, loaded	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	

143 MAX  
 135 MAX  
 140 MAX  
 140 MAX

Observations:

Flight #1 - GPS CHECK AGAINST A/S - LEVEL - 90 KTS OK.  
 #2 " " 89 KTS OK.  
 #3 " " 85 KTS OK.  
 89 KTS OK.

MARBOR R.H. / BEAR PAWS / CARGO HOOK



Madonna Helicopters LTD  
**WEIGHT AND BALANCE R44 II**

9/29/2010

**Aircraft: R44 II**

**Reg: C-FHZY**

**S/N 11196**

	Horizontal		
From amendment # 11 21 DEC 09	Weight	Arm	Moment
<b>As Weighed</b>	1549.88	106.46	165004.68
<b>Remove:</b>			
Landing Gear fairings	-4.40	96.60	-425.04
<b>Add:</b>			
Cargo Basket Provisions R/H	11.60	101.30	1175.08
Cargo Basket R/H	41.80	112.40	4698.32
cargo basket ballast	0.00	112.40	0.00
<b>Empty Weight</b>	<b>1598.88</b>	<b>106.61</b>	<b>170453.04</b>

Net Wt Change (+) lbs.

C of G Limits

49.00

Approx: 92.0" Fwd. to 102.5" Aft

Lateral	
Arm	Moment
0.28	432.71
0.00	0.00
7.20	83.52
34.40	1437.92
34.40	0.00
<b>1.22</b>	<b>1954.15</b>

-3.0" to +3.0"

**Most Fwd C of G**

Weight Empty	1598.88	106.61	170453.04
Add Pilot (RHS)	190.00	49.50	9405.00
Add Passenger <del>Fwd</del> (LHS)	240.00	79.50	19080.00
Fuel - Main tank	90.00	106.00	9540.00
Fuel - Aux Tank	60.00	102.00	6120.00
	<b>2178.88</b>	<b>98.49</b>	<b>214598.04</b>

Most FWD Limit

Approx: 92.0" to 102.5"

1.22	1954.15
12.20	2318.00
-12.20	-2928.00
-13.50	-1215.00
13.00	780.00
<b>0.62</b>	<b>1344.15</b>

-3.0" to +3.0"

**Most Aft C of G → CHECK, PILOT + FULL FUEL ONLY**

Weight Empty	1598.88	106.61	170453.04
Add Pilot (RHS)	190.00	49.50	9405.00
Add Full Fuel (48.9 USG.)	293.40	104.00	30513.60
	<b>2082.28</b>	<b>101.03</b>	<b>210371.64</b>

Most AFT Limit

Approx: 92.0" to 102.5"

1.22	1954.15
12.20	2318.00
-0.50	-146.70
<b>1.98</b>	<b>4125.45</b>

-3.0" to +3.0"

The described maintenance has been performed in accordance with the applicable Airworthiness requirements.

29-Sep-10

Date

Signature and Licence Number

**RA BASKET, EMPTY**

Madonna Helicopters LTD  
**WEIGHT AND BALANCE R44 II**  
9/29/2010

**Aircraft: R44 II**

**Reg: C-FHZY**

**S/N 11196**

	Horizontal		
From amendment # 11 21 DEC 09	Weight	Arm	Moment
<b>As Weighed</b>	1549.88	106.46	165004.68
<b>Remove:</b>			
Landing Gear fairings	-4.40	96.60	-425.04
<b>Add:</b>			
Cargo Basket Provisions R/H	11.60	101.30	1175.08
Cargo Basket R/H	41.80	112.40	4698.32
cargo basket ballast	160.00	112.40	17984.00
<b>Empty Weight</b>	<b>1758.88</b>	<b>107.13</b>	<b>188437.04</b>

Net Wt Change (+) lbs. 209.00  
C of G Limits

Approx: 92.0" Fwd. to 102.5" Aft

Lateral	
Arm	Moment
0.28	432.71
0.00	0.00
7.20	83.52
34.40	1437.92
34.40	5504.00
<b>4.24</b>	<b>7458.15</b>

-3.0" to +3.0"

**Most Fwd C of G**

Weight Empty	1758.88	107.13	188437.04
Add Pilot (RHS)	190.00	49.50	9405.00
Add Passenger <del>FAA</del> (LHS)	240.00	79.50	19080.00
Fuel - Main tank	80.00	106.00	8480.00
Fuel - Aux Tank	50.00	102.00	5100.00
	<b>2318.88</b>	<b>99.40</b>	<b>230502.04</b>

Most FWD Limit

Approx: 92.0" to 102.5"

4.24	7458.15
12.20	2318.00
-12.20	-2928.00
-13.50	-1080.00
13.00	650.00
<b>2.95</b>	<b>6848.15</b>

-3.0" to +3.0"

**Most Aft C of G → CHECK, PILOT + FULL FUEL ONLY**

Weight Empty	1758.88	107.13	188437.04
Add Pilot (RHS)	190.00	49.50	9405.00
Add Full Fuel (48.9 USG.)	293.40	104.00	30513.60
	<b>2242.28</b>	<b>101.84</b>	<b>228355.64</b>

Most AFT Limit

Approx: 92.0" to 102.5"

4.24	7458.15
12.20	2318.00
-0.50	-146.70
<b>4.29</b>	<b>9629.45</b>

-3.0" to +3.0"

The described maintenance has been performed in accordance with the applicable Airworthiness requirements.

29-Sep-10

Date

Signature and Licence Number

**R4 BASKET, LOADED**

Madonna Helicopters LTD  
**WEIGHT AND BALANCE R44 II**

9/29/2010

**Aircraft: R44 II**

**Reg: C-FHZY**

**S/N 11196**

	Horizontal		
From amendment # 11 21 DEC 09	Weight	Arm	Moment
<b>As Weighed</b>	1549.88	106.46	165004.68
<b>Remove:</b>			
Landing Gear fairings	-4.40	96.60	-425.04
<b>Add:</b>			
Cargo Basket Provisions L/H	11.60	101.30	1175.08
Cargo Basket L/H	41.80	112.40	4698.32
cargo basket ballast	0.00	112.40	0.00
<b>Empty Weight</b>	<b>1598.88</b>	<b>106.61</b>	<b>170453.04</b>

Net Wt Change (+) lbs.

C of G Limits

49.00

Approx: 92.0" Fwd. to 102.5" Aft

Lateral	
Arm	Moment
0.28	432.71
0.00	0.00
-7.20	-83.52
-34.40	-1437.92
-34.40	0.00
<b>-0.68</b>	<b>-1088.73</b>

-3.0" to +3.0"

**Most Fwd C of G**

Weight Empty	1598.88	106.61	170453.04
Add Pilot (RHS)	190.00	49.50	9405.00
✓ Add Passenger Fwd (LHS)	240.00	49.50	11880.00
Fuel - Main tank	75.00	106.00	7950.00
Fuel - Aux Tank	40.00	102.00	4080.00
	<b>2143.88</b>	<b>95.05</b>	<b>203768.04</b>

Most FWD Limit

Approx: 92.0" to 102.5"

-0.68	-1088.73
12.20	2318.00
-10.40	-2496.00
-13.50	-1012.50
13.00	520.00
<b>-0.59</b>	<b>-1266.73</b>

-3.0" to +3.0"

**Most Aft C of G → CHECK, PILOT + FULL FUEL ONLY**

Weight Empty	1598.88	106.61	170453.04
Add Pilot (RHS)	190.00	49.50	9405.00
Add Full Fuel (48.9 USG.)	293.40	104.00	30513.60
	<b>2082.28</b>	<b>101.03</b>	<b>210371.64</b>

Most AFT Limit

Approx: 92.0" to 102.5"

-0.68	-1088.73
12.20	2318.00
-0.50	-146.70
<b>0.52</b>	<b>1082.57</b>

-3.0" to +3.0"

The described maintenance has been performed in accordance with the applicable Airworthiness requirements.

29-Sep-10

Date

Signature and Licence Number

LH BASKET, EMPTY



Madonna Helicopters LTD  
**WEIGHT AND BALANCE R44 II**

9/29/2010

**Aircraft: R44 II**

**Reg: C-FHZY**

**S/N 11196**

	Horizontal		
From amendment # 11 21 DEC 09	Weight	Arm	Moment
<b>As Weighed</b>	1549.88	106.46	165004.68
<b>Remove:</b>			
Landing Gear fairings	-4.40	96.60	-425.04
<b>Add:</b>			
Cargo Basket Provisions L/H	11.60	101.30	1175.08
Cargo Basket L/H	41.80	112.40	4698.32
cargo basket ballast	175.00	112.40	19670.00
<b>Empty Weight</b>	<b>1773.88</b>	<b>107.18</b>	<b>190123.04</b>

Net Wt Change (+) lbs.

224.00

C of G Limits

Approx: 92.0" Fwd. to 102.5" Aft

Lateral	
Arm	Moment
0.28	432.71
0.00	0.00
-7.20	-83.52
-34.40	-1437.92
-34.40	-6020.00
<b>-4.01</b>	<b>-7108.73</b>

-3.0" to +3.0"

**Most Fwd C of G**

Weight Empty	1773.88	107.18	190123.04
Add Pilot (RHS)	190.00	49.50	9405.00
Add Passenger <del>Full (LHS)</del> <i>RHS, AFT</i>	240.00	79.50	19080.00
Fuel - Main tank	75.00	106.00	7950.00
Fuel - Aux Tank	40.00	102.00	4080.00
	<b>2318.88</b>	<b>99.46</b>	<b>230638.04</b>

Most FWD Limit

Approx: 92.0" to 102.5"

-4.01	-7108.73
12.20	2318.00
12.20	2928.00
-13.50	-1012.50
13.00	520.00
<b>-0.80</b>	<b>-1862.73</b>

-3.0" to +3.0"

**Most Aft C of G → CHECK, PILOT + FULL FUEL ONLY**

Weight Empty	1773.88	107.18	190123.04
Add Pilot (RHS)	190.00	49.50	9405.00
Add Full Fuel (48.9 USG.)	293.40	104.00	30513.60
	<b>2257.28</b>	<b>101.91</b>	<b>230041.64</b>

Most AFT Limit

Approx: 92.0" to 102.5"

-4.01	-7108.73
12.20	2318.00
-0.50	-146.70
<b>-2.19</b>	<b>-4937.43</b>

-3.0" to +3.0"

The described maintenance has been performed in accordance with the applicable Airworthiness requirements.

29-Sep-10

Date

Signature and Licence Number

*LH BASKET, LOADED*



**AERO DESIGN LTD.**

2013 – 39<sup>th</sup> Ave N. E., Calgary, Alberta, T2E 6R7

www.aerodesign.ca

**F A X C O V E R S H E E T**

DATE:	September 28, 2010	TIME:	9:57 AM
TO:	<b>Maintenance and Manufacturing</b>	PHONE:	
	<b>Transport Canada</b>	FAX:	403-292-6709
FROM:	Jeff Clarke	PHONE:	403-250-8027
	Aero Design Ltd.	FAX:	403-250-8333

Number of pages including cover sheet: 8

**RE: FLIGHT PERMIT APPLICATION**

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Hello,

Please find attached a Flight Permit Application for Robinson R44 II, C-FHZY. Note that the signed copies have been faxed back and forth and are not very legible so I have also included the original (unsigned) copy for reference.

Also attached is the Flight Test Plan which has been reviewed and accepted by Michel Brulotte at Flight Test in Ottawa.


The flight testing is in support of obtaining an STC for our quick release cargo baskets on the R44.

I apologize for the short notice, the aircraft is only available to us tomorrow, and will not be available again until next Wednesday (Oct. 6). Michel Brulotte will be flying the installation on Oct 6 / 7 / 8 as required.

Jack Staal is our OPI in Edmonton, and the NAPA file is C-10-0741.

If you have any questions, please feel free to contact me.

Regards,



Jeff Clarke

## **AIRWORTHINESS NOTICE B043 EDITION 2, dated 28 January 2000**

### **CONFORMITY INSPECTION ASSOCIATED WITH APPLIANCE TYPE CERTIFICATION OR MODIFICATION/REPAIR APPROVAL PROJECTS**

*(This Airworthiness Notice supersedes AN No. B043 Edition 1, dated 24 April 1998.)*

#### **Purpose**

The purpose of this notice is to explain the responsibilities of an applicant prior to requesting a conformity inspection associated with the prototype evaluation of a supplemental type certificate (STC), a limited supplemental type certificate (L/STC), a repair design certificate (RDC), a TSO and/or an appliance type certificate (AP-TC) installation. This revision is intended to clarify the qualifications for those persons responsible for the conformity inspections.

#### **Background**

In several cases, prototype installations have not been performed in accordance with the applicant's installation drawings nor have the necessary ground tests been conducted, where required, prior to seeking a conformity inspection by Transport Canada (TC). This situation may often result in ineffective use of TC resources.

#### **Conformity Requirements (Prototype Installation)**

The need for a conformity inspection by Transport Canada on a prototype installation associated with an STC, L/STC, RDC, AP-TC or TSO design approval project will be determined by the regional engineer responsible for the project, and the applicant will be advised accordingly. Where such a requirement has been identified, the prototype installation is to be verified by the applicant or his designated person for conformity with the applicable installation drawings and, where required, ground tests performed to determine functionality. The above functions are to be carried out prior to the applicant requesting the required conformity inspection by TC representatives.

#### **Confirmation**

A written confirmation is to be provided to the responsible regional project engineer using the Conformity Inspection Record form appended to this notice, or an equivalent form acceptable to TC. The completed form is to be signed by an appropriately rated Aircraft Maintenance Engineer (AME) or Approved Maintenance Organization (AMO). TC form 24-0045 (Conformity Certificate - Repair or Modification), which is intended to certify the installation of an approved modification or repair, should not be used as a Conformity Inspection Record. The Conformity Inspection Record should be accompanied by details pertaining to the location of the test article, the proposed modification or repair, and a proposed date for accomplishing the conformity inspection by TC Airworthiness Inspectors.

# CONFORMITY INSPECTION RECORD

Applicant	Aeronautical Product				Title of Change
AERO Design Ltd.	Make	Model	Serial No.	Registration	Quick Release Mounting Provisions Quick Release Cargo Basket
	Robinson	R44	11196	C-FHZY	
Drawing No.	Applicant's Inspector		T.C. Inspection		Findings
	Signature	Date	Signature	Date	
Provisions					
90602 (Provisions Installation)					
90620 (Clamps)	<i>[Signature]</i>	29/08/10			
90630 (Fwd Beam)	<i>[Signature]</i>	↓			
90631 (Aft Beam)	<i>[Signature]</i>				
Basket					
90601 (Installation)					
90610 (Assy)	<i>[Signature]</i>	29/08/10			
90611 (Body)	<i>[Signature]</i>	↓			
90612 (Lid)	<i>[Signature]</i>				

## APPLICANT'S ATTESTATION

I hereby confirm that the prototype installation for the subject

☒ MODIFICATION,

☐ REPAIR,

☐ TSO/AP-TC ARTICLE

is in conformity with the applicable installation drawing(s) listed above and that necessary ground tests have been carried out.

[Please check (✓) the applicable box.]

Additional Information:

LH basket disposition on dwg. PD906.

*RH + LH Baskets and Installations conformed.*

## TC INSPECTION

☐ ACCEPTABLE

☐ UNACCEPTABLE

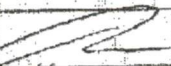
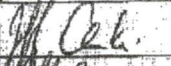
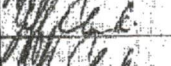
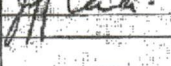



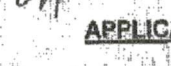
Remarks:

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_



# CONFORMITY INSPECTION RECORD

Applicant	Aeronautical Product				Title of Change
	Make	Model	Serial No.	Registration	
AERO Design Ltd.	Robinson	R44	11196	C-FHZY	Quick Release Mounting Provisions Quick Release Cargo Basket
Drawing No.	Applicant's Inspector		T.C. Inspection		Findings
	Signature	Date	Signature	Date	
Provisions					
90602 (Provisions Installation)		29/09/10			
90620 (Clamps)		29/09/10			
90630 (Fwd Beam)		↓			
90631 (Aft Beam)		↓			
Basket					
90601 (Installation)		29/09/10			
90610 (Assy)		29/09/10			
90611 (Body)		↓			
90612 (Lid)		↓			

## APPLICANT'S ATTESTATION

I hereby confirm that the prototype installation for the subject

☒ MODIFICATION

☐ REPAIR

☐ TSO/AP-TC ARTICLE

is in conformity with the applicable installation drawing(s) listed above and that necessary ground tests have been carried out  
[Please check (✓) the applicable box.]

### Additional Information:

LH basket disposition on dwg. PD906.

RH + LH Baskets and Installations conformed.

Signature: 



## TC INSPECTION

☐ ACCEPTABLE

☐ UNACCEPTABLE

Remarks:

Signature: \_\_\_\_\_



**AERO Design Ltd.**

**FLIGHT TEST PLAN  
FTP906.03**

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**ROBINSON R44  
QUICK RELEASE CARGO BASKET**

Prepared by: J. Clarke, CET

Approved by: E. Burgoin, P.Eng., DAR 290M

Revision 0, 23 September 2010

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## **1.0 INTRODUCTION**

The Quick Release Cargo Basket is mounted on the right or left side of the helicopter. The basket is made from steel tubing and expanded steel mesh. It is quickly detachable from the mounting beams that support it.

## **2.0 REFERENCE TEXT**

AERO Design Ltd. Installation Drawings 90601, 90602  
AERO Design Ltd. Flight Manual Supplement FMS906.90  
Robinson R44 Rotorcraft Flight Manual

## **3.0 FLIGHT TEST OBJECTIVE**

Flight testing of the Quick Release Cargo Basket is meant to demonstrate that the installation is free of excessive vibration at speeds from hover thru to  $V_d$ , and does not produce undesirable effects to the handling and performance qualities of the helicopter.

This flight testing is in advance of flight testing by Transport Canada Flight Test Division in support of obtaining a Supplemental Type Certificate.

## **4.0 TEST PREPARATION**

### **4.1 Instrument Calibration**

The maintenance records of the test helicopter will be checked to ensure the airspeed indicator has been calibrated within the specified time period.

### **4.2 Equipment**

The helicopter will be fitted with the Quick Release Mounting Provisions in accordance with drawing 90602 on the right or left side as applicable.

The helicopter will be fitted with the Quick Release Cargo Basket installation in accordance with drawing 90601 on the right or left side as applicable.

### **4.3 Flight Test Crew**

Two crew members will be required for the test:

- 1) Pilot with training and experience appropriate to the task of testing this equipment.
- 2) Test observer, either a DAR or a qualified alternate appointed by him, beside the pilot.

All members of the crew will be equipped to communicate via intercom.

Seating arrangement of the observer(s) may be limited by loading requirements.

### **4.4 Documents**

These test flights require a FLIGHT PERMIT issued by Transport Canada.

The draft Flight Manual Supplement shall be on board the aircraft.

The Pilot will familiarize himself with the contents of this Test Plan and the Flight Manual Supplement prior to flight.

### **4.5 Weight and Balance**

The helicopter will be loaded with sufficient fuel and ballast to produce the following conditions for flight:

- A) GW below 2200 lbs and Cargo Basket installed on the right (90601-01-01), basket empty
- B) Cargo Basket installed on the right (90601-01-01), basket loaded with 200 lbs.
- C) GW below 2200 lbs and Cargo Basket installed on the left (90601-01-02), basket empty
- D) Cargo Basket installed on the left (90601-01-02), basket loaded with 200 lbs.

C of G must remain within the limits specified in the Flight Manual.

Loading information specific to the Quick Release Cargo Basket is contained in the Flight Manual Supplement, FMS906.91. The basket will be loaded to 200 lbs.



## 5.0 FLIGHT TESTS

One flight is required for each of the conditions listed in 4.5 above.

The flights are to be conducted as follows:

Take off and establish cruise at 50 kts. Increase speed in 10 kt increments up to Vne. Recover from Vne, then accelerate to Vd (1.1 x Vne).

Vne as follows:

NEVER EXCEED SPEED - KIAS									
2200 LB TOGW & BELOW									
PRESS ALT-FT	OAT - °C								
	-30	-20	-10	0	10	20	30	40	
SL									
2000			130				127	123	
4000					126	122	118	114	
6000			126	122	117	113	108	103	
8000	126	122	117	112	107	101	96	91	
10000	117	112	106	101	95	90	85		
12000	107	101	95	89					
14000	95	89							
OVER 2200 LB TOGW, SUBTRACT 10 KIAS FOR AUTOROTATION, SUBTRACT 30 KIAS									

Note that gross weight with basket loaded will exceed 2200 lbs, reduce Vne by 10 kts accordingly.

## 6.0 RECORDING OF RESULTS

Check (✓) if acceptable.

	Airspeed (kts)											
Configuration	50	60	70	80	90	100	110	120	Vne	Vd		
Right, empty												
Right, loaded												
Left, empty												
Left, loaded												

Observations:

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**AERO DESIGN LTD.**

2013 – 39<sup>th</sup> Ave N. E., Calgary, Alberta, T2E 6R7

www.aerodesign.ca

**F A X C O V E R S H E E T**

DATE: September 28, 2010

TIME: 8:10 AM

TO: **Roger**

PHONE: 403-948-0968

**Madonna Helicopters**

FAX: 403-948-7933

FROM: J. Clarke  
Aero Design Ltd.

PHONE: 403-250-8027

FAX: 403-250-8333

Number of pages including cover sheet: 2

**RE: FLIGHT PERMIT APPLICATION**

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Roger,

Please find attached the flight permit application for the R44 flight tests. Please have both lines on the bottom signed and fax back to me. If you have any questions let me know.

Regards,



Jeff



Transport  
Canada

Transports  
Canada

## APPLICATION FOR A FLIGHT PERMIT

## DEMANDE DE PERMIS DE VOL

### INSTRUCTIONS

Print or type all entries. Reference *Canadian Aviation Regulations Standard 507* for the use and disposition of the form.

Dactylographier ou écrire en lettres moulées. Consultez Règlement de l'aviation canadien norme 507 du Manuel de navigabilité qui précise la façon de remplir et d'acheminer le présent formulaire.

### A. AIRCRAFT IDENTIFICATION - IDENTIFICATION DE L'AÉRONEF

1. Owner - Propriétaire Can-Oz Heli Services Inc.	3. Aircraft Manufacturer - Constructeur de l'aéronef Robinson	4a. Model - Modèle R44 II
2. Address - Adresse Box 68125, 28 Crowfoot Terrace NW Calgary, AB T3G 3N8	4b. Maximum Permissible Take-Off Weight Masse maximale admissible au décollage ▶ 1133.98 Kg _____ lb	6. Nationality and Registration Marks Marques de nationalité et d'immatriculation C-FHZY
	5. Serial Number - Numéro de série 11196	

### B. PURPOSE OF FLIGHT PERMIT (Check applicable boxes) - OBJECTIF DU PERMIS DE VOL (Cocher la ou les case(s) voulue(s))

- ☐ Ferry flights to a base for repairs or maintenance  
Un vol de convoyage vers une base en vue de réparation ou de maintenance
- ☐ Delivery, demonstration, market survey, or crew training flights  
Un vol de livraison, de démonstration, d'étude de marché ou d'entraînement d'équipage
- ☒ Flights for the purpose of showing compliance with airworthiness standards  
Un vol de démonstration de conformité aux normes de navigabilité
- ☐ Other purpose (Specify)  
Autre fin (Préciser)

### C. FLIGHT DESCRIPTION AND AIRCRAFT LIMITATIONS

Description of Flight(s) Use attachment when appropriate

### DESCRIPTION DU VOL ET LIMITATIONS DE L'AÉRONEF

Description du ou des vol(s) Joindre une feuille au besoin

1. From - Aéroport de départ Airdrie Airport (CEF4)	2. To - Aéroport de destination Airdrie Airport (CEF4)	
3. Via - Escales None	4. Effective date (yyyy - mm - dd) Date effective (aaaa - mm - jj) 2010-09-29	5. Termination date (aaaa - mm - dd) Date limite (aaaa - mm - jj) 2010-10-29

6. Aircraft does not meet the applicable airworthiness requirements as follows:

Raisons pour lesquelles l'aéronef ne satisfait pas aux exigences de navigabilité en vigueur :

- Modified with Quick Release Cargo Basket in accordance with DCL906-1 and DCL906-2.
- Flight testing in accordance with Flight Test Plan FTP906.03 (accepted by TC Flight Test)
- Flight to Vd (1.1 x Vne) required.

7. The following maintenance conditions are considered necessary for safe operation:

Les conditions d'entretien suivantes sont nécessaires pour la conduite des vols en toute sécurité :

Aircraft certified as safe and fit for flight by a qualified AME in the aircraft journey logbook prior to flight.

8. The following operating conditions are considered necessary for safe operation:

Les conditions d'exploitation suivantes sont nécessaires pour la conduite des vols en toute sécurité :

- DAY-VFR conditions
- No flight over built up areas
- Essential crew only
- Flight to Vd is permitted
- draft flight manual supplement FMS906.90 to be carried on board

### D. SIGNATURES

I hereby certify that the aircraft described above is in a condition for safe operation.

Je, soussigné, certifie que l'aéronef décrit ci-dessus est en bon état de vol.

\_\_\_\_\_  
Signature, AME Licence No., ACA No. or RCA No.  
Signature, N° de licence de TEA, N° d'autorisation ou N° d'autorisation restreinte  
and - et

\_\_\_\_\_  
Date (yyyy - mm - dd)  
Date (aaaa - mm - jj)

\_\_\_\_\_  
Signature of the Registered Owner or Authorized Representative  
Signature du propriétaire enregistré ou du représentant autorisé

\_\_\_\_\_  
Date (yyyy - mm - dd)  
Date (aaaa - mm - jj)



Transport  
CanadaTransports  
Canada

Canada

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**\*\*\*Current Information, directly from the Official Canadian Civil Aircraft Register database.\*\*\***

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**Aircraft Information**

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**Mark:** C-FHZY**Common Name:** Robinson**Model Name:** R44 II**Serial No:** 11196**Basis for Eligibility for Registration:** Type Certificate - CAR Standard 507.02, 507.03 - H97**Category:** Helicopter**Max take-off weight:** 1133.98 kgs**Engine:** 1, Piston**24-bit address:** 110000000001010100011111**Regional Office:** Edmonton**Year Imported:** 2006**Base of Operations:** CANADA , Alberta, Sundre

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**Manufacturer Information**

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**Manufacturer:** ROBINSON**Country of manufacture:** U.S.A.**Year of Manufacture:** 2006

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**Registration Information**

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**Type of Registration:** Commercial**Owner Registered Since:** 2009-11-12**Latest Certificate of Registration Issued:** 2009-11-12

---

**Last Registered Owner Information**

---

**Name:** Can-Oz Heli Services Inc.**Address:** Box 68125, 28 Crowfoot Terrace NW**City:** Calgary**Province/State:** Alberta**Postal Code:** T3G 3N8**Country:** CANADA**Region:** Prairie and Northern**Mail Recipient:** Yes

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Transport Canada  
Transport Canada

APPLICATION FOR A  
FLIGHT PERMIT

DEMANDE DE  
PERMIS DE VOL

INSTRUCTIONS  
Print in type 88 entree. Reference Canadian Aviation Regulations  
Standard 507 for the use and disposition of the form.

Complétez ce formulaire en lettres majuscules. Consultez le Règlement de l'aviation  
canadien norme 507 du Manuel de navigabilité qui précise la façon de remplir et  
d'archiver le présent formulaire.

1. Owner - Propriétaire Can-On Heli Services Inc.		2. Aircraft Manufacturer - Constructeur de l'aéronef Robinson		3. Model - Modèle R44 II	
2. Address - Adresse Box 88123, 25 Crowfoot Terrace NW Calgary, AB T2C 3M8		4a. Maximum Permissible Take-Off Weight Maximum poids admissible au décollage 1133.00 kg		4b. Serial Number - Numéro de série 11155	
				5. Nationality and Registration Marks Marques de nationalité et d'immatriculation C-FWEX	
6. Purpose of flight - But de la mission 1. <input type="checkbox"/> Ferry flight to a base for repairs or maintenance Un vol de convoyage vers une base en vue de réparation ou de maintenance 2. <input type="checkbox"/> Delivery, demonstration, market survey, or crew training flight Un vol de livraison, de démonstration, d'étude de marché ou d'entraînement d'équipage 3. <input checked="" type="checkbox"/> Flight for the purpose of showing compliance with airworthiness standards Un vol de démonstration de conformité aux normes de navigabilité 4. <input type="checkbox"/> Other purpose (Specify) Autre fin (Préciser)					
1. From - Adresse de départ Airdrie Airport (CFE4)		2. To - Adresse de destination Airdrie Airport (CFE4)		3. Termination date (year - mm - dd) Date limite (année - mm - jj) 2010-09-29	
3. Via - Escale None		4. Effective date (year - mm - dd) Date effective (année - mm - jj) 2010-09-29		5. Termination date (year - mm - dd) Date limite (année - mm - jj) 2010-10-29	
8. Aircraft does not meet the applicable airworthiness requirements as follows: L'aéronef ne répond pas aux exigences de navigabilité en vigueur: -Modified with Quick Release Cargo Basket in accordance with DCL906-1 and DCL906-2. -Flight testing in accordance with Flight Test Plan FTR906.03 (accepted by TC Flight Test) -Flight to Vd (1.1 x Vne) required.					
7. The following maintenance conditions are considered necessary for safe operation: Les conditions d'entretien suivantes sont nécessaires pour la conduite des vols en toute sécurité: Aircraft certified as safe and fit for flight by a qualified AME in the aircraft journey logbook prior to flight.					
9. The following operating conditions are considered necessary for safe operation: Les conditions d'exploitation suivantes sont nécessaires pour la conduite des vols en toute sécurité: -DAY-VFR conditions -No flight over built up areas -Essential crew only -Flight to Vd is permitted -draft flight manual supplement FMS906.00 to be carried on board					
I hereby certify that the aircraft described above is in a condition for safe operation. Je soussigné, certifie que l'aéronef décrit ci-dessus est en état de vol.					
Signature, AME Licence No., AGA No. or TEA No. Signature, N° de licence de TEA, N° d'immatriculation ou N° d'agrégation restreinte and - et		2010-09-28 Date (year - mm - dd) Date (année - mm - jj)			
Signature of the Registered Owner or Authorized Representative Signature du propriétaire enregistré ou du représentant autorisé		2010/09/28 Date (year - mm - dd) Date (année - mm - jj)			

24-0044 (07-10-09)

Canada

## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 906.92

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### QUICK RELEASE CARGO BASKET

### ROBINSON R44, R44 II

#### Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Cargo Basket is installed in accordance with AERO Design Ltd. Document Control List DCL906-2.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 0  
Date: 22 September 2010

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**RECORD OF REVISIONS**

Revision Number	Issue Date	Date Inserted	By
0	22 September 2010		Original Issue

**LIST OF EFFECTIVE PAGES**

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<b>DEFINED.</b>	



## CHAPTER 0 – INTRODUCTION

### 0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Cargo Basket as described herein.

### 0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness  
LH - Left Hand  
RH - Right Hand

### 0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Cargo Basket. Requests for a copy may be made in writing to:

AERO Design Ltd.  
2013 39<sup>th</sup> Avenue N.E.  
Calgary, Alberta  
T2E 6R7  
Fax: 403-250-8333  
Email: [info@aerodesign.ca](mailto:info@aerodesign.ca)

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

### 0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

This installation is NOT compatible with fixed or pop-out float installations.

## 0-5 GENERAL DESCRIPTION

The cargo basket installation is a mesh basket installed to the side of the helicopter on beams attached to fittings mounted on the cross tube elbows. The quick release mechanism allows for the installation and removal of the basket quickly without tools, leaving the mounting beams in place.

The basket itself is made of a steel welded tubing structure, and lined with expanded steel mesh. The basket has a hinged lid with a self-locking handle.

The beams consist of a steel tube bolted to fittings attached to the forward and aft cross tube elbows. The quick release mechanism is built into the steel tube.

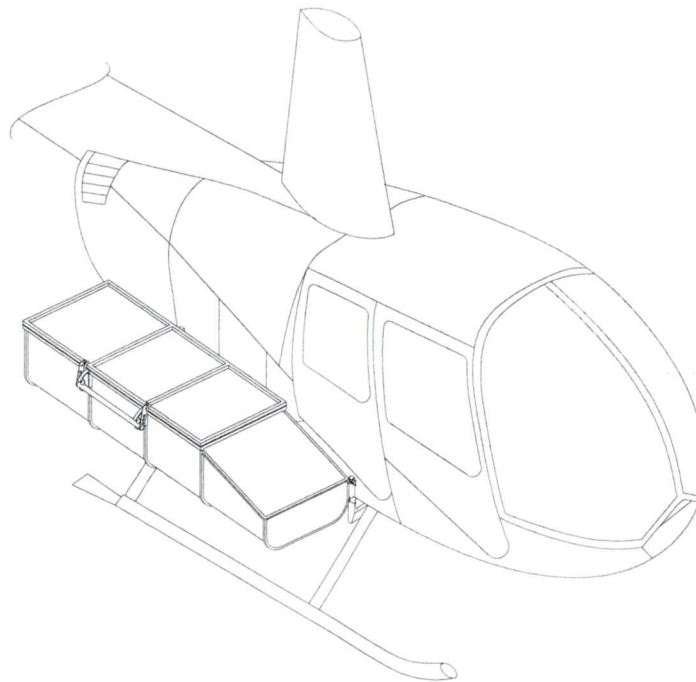


Figure 0.1 – Robinson R44 Cargo Basket Installation

## CHAPTER 4 - AIRWORTHINESS LIMITATIONS

### *Transport Canada*

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

### *FAA*

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Cargo Basket.

## CHAPTER 5 – INSPECTION REQUIREMENTS

### 5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Cargo Basket.

#### *Daily Inspection*

1. Inspection Area: Basket
  - a) Inspect the basket attachment to the beams for condition and security. Ensure quick release mechanism is completely extended, flush with the outboard surface of the beam.
  - b) Inspect latching of the lid for correct operation. If basket is bent inward the lid will close but may not latch.

#### *100 Hour or Annual Inspection*

1. Inspection Area: Basket
  - a) Visually inspect tube-to-tube welds and mesh-to-tube welds for cracks, corrosion or other damage.
  - b) Visually inspect basket mesh for damage.

#### *Special Inspections*

Following a hard landing inspect the Quick Release Cargo Basket installation in accordance with the 100 hour or annual inspection listed above.

### 5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Basket
  - a) Repair Basket in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, as required.
  - b) Basket is fabricated from the following materials:

Attachment Hoops:	1" square steel tube and/or 1/2" square steel tube
Lid and Rim:	3/4" square steel tube
Frames:	1/2" square steel tube
Mesh:	3/4" 16 ga. (0.040") expanded steel mesh
  - c) Touch up with polyurethane paint as required following repairs.



### **5-3 PROTECTIVE TREATMENT INFORMATION**

#### **1. Cargo Basket**

The cargo basket is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

**CHAPTER 11 – MARKINGS AND PLACARDS**

The following markings and placards are used with the Quick Release Cargo Basket Installation in the locations noted:

- a) Located on basket lid:



RIGHT HAND BASKET



LEFT HAND BASKET

## CHAPTER 25 – EQUIPMENT AND FURNISHINGS

### SECTION 50 – CARGO COMPARTMENTS

#### 25-1 BASKET REMOVAL

1. Pull knob at bottom end of aft beam and lift basket until attachment fittings are free of keyways. Rest aft end of basket on ground.
2. Slide basket forward and lift attachment fitting out of keyway in forward beam.

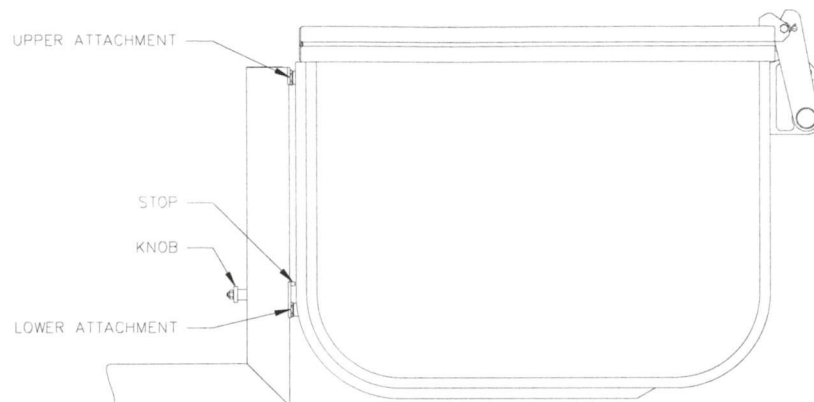


Figure 25.1 – Aft Attachment Features

#### 25-2 BASKET INSTALLATION

Installation of the Quick Release Mounting Provisions is required prior to installing the Quick Release Cargo Basket. Refer to ICA906.91.

1. At forward end of basket, set upper attachment fitting into keyway in forward beam. Allow basket to hang from fitting, rest aft end on ground.

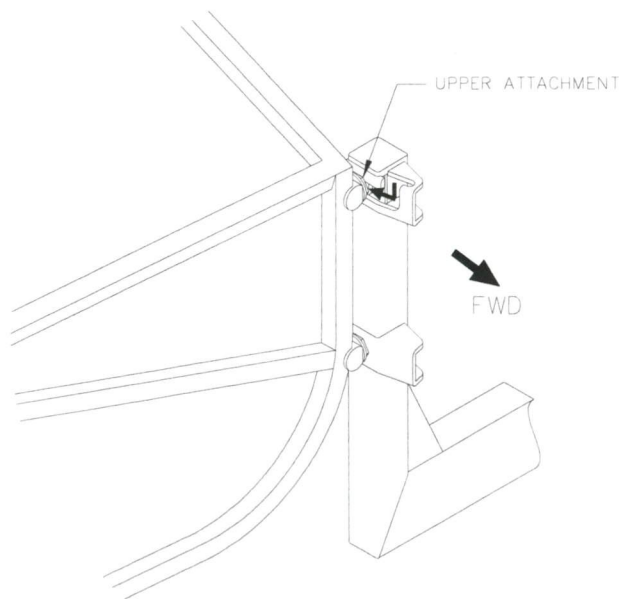
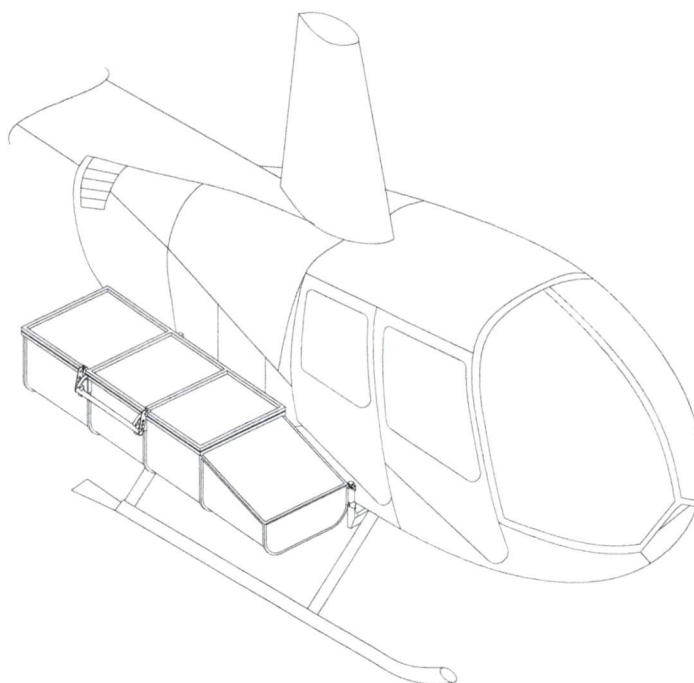


Figure 25.2 – Basket Attachment Features

2. Raise aft end of basket to aft beam, sliding basket aft, and lift until lower attachment fitting hits stop over keyway.
3. Push fitting into lower keyway, ensure top fitting enters top keyway, and slide basket down until locked.

### 25-3 WEIGHT AND BALANCE



Quick Release Cargo Basket: Configuration 90601-01

Standard P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
90610-01-XX	Basket	41.8	112.4	4698.3	34.4	1437.9
90602-01-XX	Quick Release Mounting Provisions	11.6	101.3	1174.5	7.2	84.0
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>53.4</b>	<b>110.0</b>	<b>5872.8</b>	<b>28.5</b>	<b>1521.9</b>
Maximum Cargo (centred in basket)		175.0	112.4	19670.0	34.4	6020.0

Metric P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
90610-01-XX	Basket	18.9	2855	53999	874	16526
90602-01-XX	Quick Release Mounting Provisions	5.3	2552	13396	184	965
<b>90601-01-XX</b>	<b>Basket Installation</b>	<b>24.2</b>	<b>2789</b>	<b>67394</b>	<b>724</b>	<b>17491</b>
Maximum Cargo (centred in basket)		80.0	2855	228397	874	69901

Note: -XX indicates side. -01 is RH, -02 is LH. Lateral arm is negative on LH side.



**OPTIONS**

The following weight and balance is for optional configurations of the basket

Standard		Weight	Longitudinal		Lateral	
P/N	Description	lb	arm in	moment in-lb	arm in	moment in-lb
70408-01	Hangar Wheel	0.8	149.0	119.2	31.1	24.9

Metric		Weight	Longitudinal		Lateral	
P/N	Description	kg	arm mm	moment mm-kg	arm mm	moment mm-kg
70408-01	Hangar Wheel	0.4	3785	1370	790	286

**25-4 STRUCTURAL FASTENER DATA**

Refer to Robinson R44 Maintenance Manual, section 1.300 for torque values not listed in this ICA.

## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 906.91

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### QUICK RELEASE MOUNTING PROVISIONS

### ROBINSON R44, R44 II

#### Preface

These Instructions for Continued Airworthiness shall be included in the Robinson R44 Maintenance Manual when the External Attachment Provisions are installed in accordance with AERO Design Ltd. Document Control List DCL906-1, Revision 0, or later approved revision.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 0  
Date: 22 September 2010

---

AERO Design Ltd.  
Engineering Consultants

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**RECORD OF REVISIONS**

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**LIST OF EFFECTIVE PAGES**

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## CHAPTER 0 – INTRODUCTION

### 0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for the Robinson R44 Series embodying the External Attachment Provisions as described herein.

### 0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness  
LH - Left Hand  
RH - Right Hand

### 0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the External Attachment Provisions. Requests for a copy may be made in writing to:

AERO Design Ltd.  
2013 39<sup>th</sup> Avenue N.E.  
Calgary, Alberta  
T2E 6R7  
Fax: 403-250-8333  
Email: [info@aerodesign.ca](mailto:info@aerodesign.ca)

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

### 0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

This installation is NOT compatible with fixed or pop-out float installations.

### 0-5 GENERAL DESCRIPTION

Quick Release Mounting Provisions are a pair of beams mounted to fittings attached to the cross tube elbows under the helicopter. The Quick Release Mounting Provisions allow the installation of various equipment, such as cargo baskets.

The fittings are aluminum clamps with a mounting point for the beam. The clamp arrangement allows for variability in the cross tube elbows, and allows the cross tube to flex without stiffening due to the beam.

The beams are steel tubing which stick out from the side of the helicopter, and have a vertical tube with keyways in the outboard face to mount various pieces of equipment such as cargo baskets and flight steps. The quick release mechanism is built into the down tube.

## CHAPTER 4 – AIRWORTHINESS LIMITATIONS

### *Transport Canada*

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

### *FAA*

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Mounting Provisions.

## CHAPTER 5 – INSPECTION REQUIREMENTS

### 5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the Robinson R44 Series Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of the Quick Release Mounting Provisions.

#### *100 Hour or Annual Inspection*

1. Inspection Area: Landing Gear Cross Tube Elbows
  - a) Visually inspect attachment clamp fittings in situ for cracks, corrosion or other damage.
  - b) Visually inspect hardware securing attachment fittings to cross tube elbows in situ for security and damage.
2. Inspection Area: Beams
  - a) Visually inspect beams for cracks, corrosion or other damage.
  - b) Visually inspect bolts attaching beams to external attachment provisions for security and damage.
  - c) Inspect rubber hose at clamp fitting for condition.

#### *Special Inspections*

Following a hard landing inspect the Quick Release Mounting Provisions installation in accordance with the 100 hour or annual inspection listed above.

### 5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

#### 1. Attachment Fittings

DO NOT REPAIR DAMAGE TO FITTINGS IF BEYOND THE LIMITS BELOW.

- a) Nicks and/or gouges on any surface up to 0.030" deep and 0.125" wide may be dressed out to a smooth contour. Touch up paint as required.
- b) Cracking on any surface is unacceptable.
- c) Do not repair elongation of provision bolt hole (AN6 bolt). Hole is nominally 0.386" (W drill) in diameter.
- d) Touch up with polyurethane paint as required following repairs.

#### 2. Beams

DO NOT REPAIR DAMAGE TO BEAMS IF BEYOND THE LIMITS BELOW.

- a) Nicks and/or gouges on any face up to 0.015" deep and 0.125" wide may be dressed out to a smooth contour.

- b) Critical keyway dimensions on the aft beam are shown in Figure 5.1. The forward beam does not have a critical dimension. Attempt to insert 15/32 drill shank into bottom end of slots. If drill can be inserted, slot is worn beyond limit.



Figure 5.1 – Critical Keyway Dimensions (Aft Beam)

- c) Touch up with polyurethane paint as required following repairs.
- d) Rubber hose on attachment end of beams shall be replaced if it shows signs of cracking, hardening, or other deterioration. Replace with  $\frac{3}{4}$ " ID commercial heater hose, 1" long.

### 5-3 PROTECTIVE TREATMENT INFORMATION

#### 1. Attachment Fittings

The Attachment Fittings are supplied painted white. If the paint is damaged, touch up with polyurethane paint.

#### 2. Beams

The Beams are supplied powder coated white. If the powder coating is damaged, touch up with polyurethane paint.



## CHAPTER 25 – EQUIPMENT AND FURNISHINGS

Refer to drawing 90602. Refer to Maintenance Manual for further information regarding installation and removal of landing gear attachments.

### 25-1 QUICK RELEASE MOUNTING PROVISIONS REMOVAL

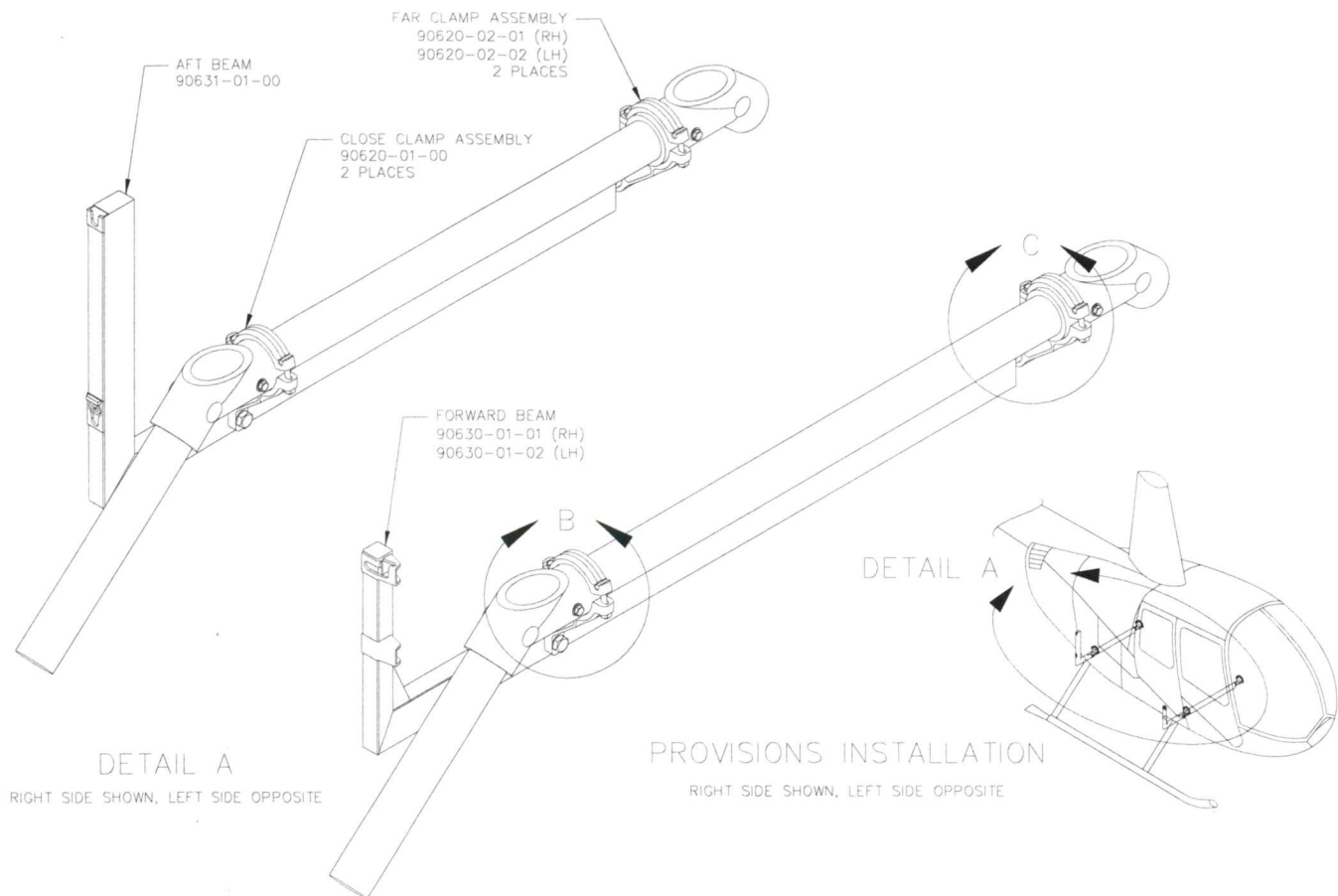


Figure 25.1 – Quick Release Mounting Provisions

1. Remove AN6-21A Bolt, AN960-616 Washers and MS21044N6 Nut attaching Forward Beam (90630-01-01 RH or -02 LH) to Close Clamp Assembly. Remove Forward Beam by pulling out of Far Clamp Assembly. Ensure Rubber Hose remains on Forward Beam.
2. Remove AN6-21A Bolt, AN960-616 Washers and MS21044N6 Nut attaching Aft Beam (90631-01-00) to Close Clamp Assembly. Remove Aft Beam by pulling out of Far Clamp Assembly. Ensure Rubber Hose remains on Aft Beam.
3. Loosen BH00182A4 Self Aligning Nut on T-Bolt on Clamp Assembly. Clamp Assembly may be moved off elbow to centre section of cross tube for easier access.
4. Remove MS21042L4 Nut, and AN960-416 Washer from AN4 bolt on Clamp Assembly.

5. Remove Clamp Assembly from cross tube.
6. Repeat steps 3 - 5 for remaining Clamp Assemblies.
7. Forward Cross Tube Cover (C475-5) and Strut Fairings (C082-XX) may be installed in accordance with the Robinson R44 Maintenance Manual.

## 25-2 QUICK RELEASE MOUNTING PROVISIONS INSTALLATION

Refer to Figure 25.1.

1. Remove Strut Fairings (C082-XX) on the side of the helicopter that the equipment (cargo basket, etc.) will be installed on. Refer to R44 Maintenance Manual, Section 5.410.
2. Remove Forward Cross Tube Cover (C475-5). Leave Channels (C388-3) in place.
3. Remove MS21042L4 Nut and AN960-416 Washer from AN4-12A Bolt on Close Clamp Assembly (90620-01-00). Loosen BH00182A4 Self-Aligning Nut on FT4F-175H T-Bolt if required. Locate Clamp Assembly on forward cross tube elbow, with beam mounting lug on aft side, approximately 0.25" from inboard edge. Install AN960-416 Washer and MS21042L4 Nut on AN4-12A Bolt. Tighten nuts enough to prevent the clamp from slipping on the elbow. Repeat for aft cross tube. See Figure 25.2.

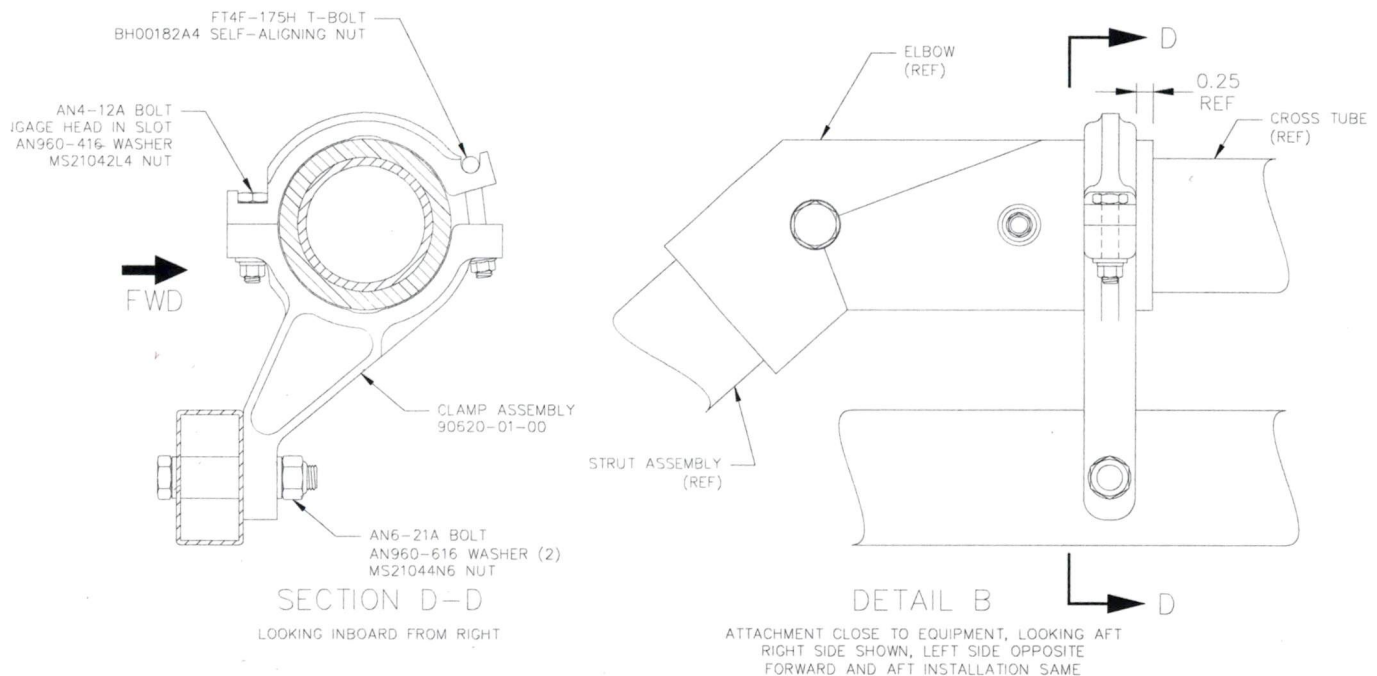


Figure 25.2 – Clamp Assembly Installation (Close Side)

4. Remove MS21042L4 Nut and AN960-416 Washer from AN4-12A Bolt on Far Clamp Assembly (90620-02-01 RH or -02 LH). Loosen BH00182A4 Self-Aligning Nut on FT4F-175H T-Bolt if required. Locate Clamp Assembly on forward cross tube elbow with beam mounting lug on aft side, approximately 0.25" from inboard edge. Install AN960-416 Washer and MS21042L4 Nut on

AN4-12A Bolt. Tighten nuts enough to prevent the clamp from slipping on the elbow. Repeat for remaining aft cross tube. See Figure 25.3

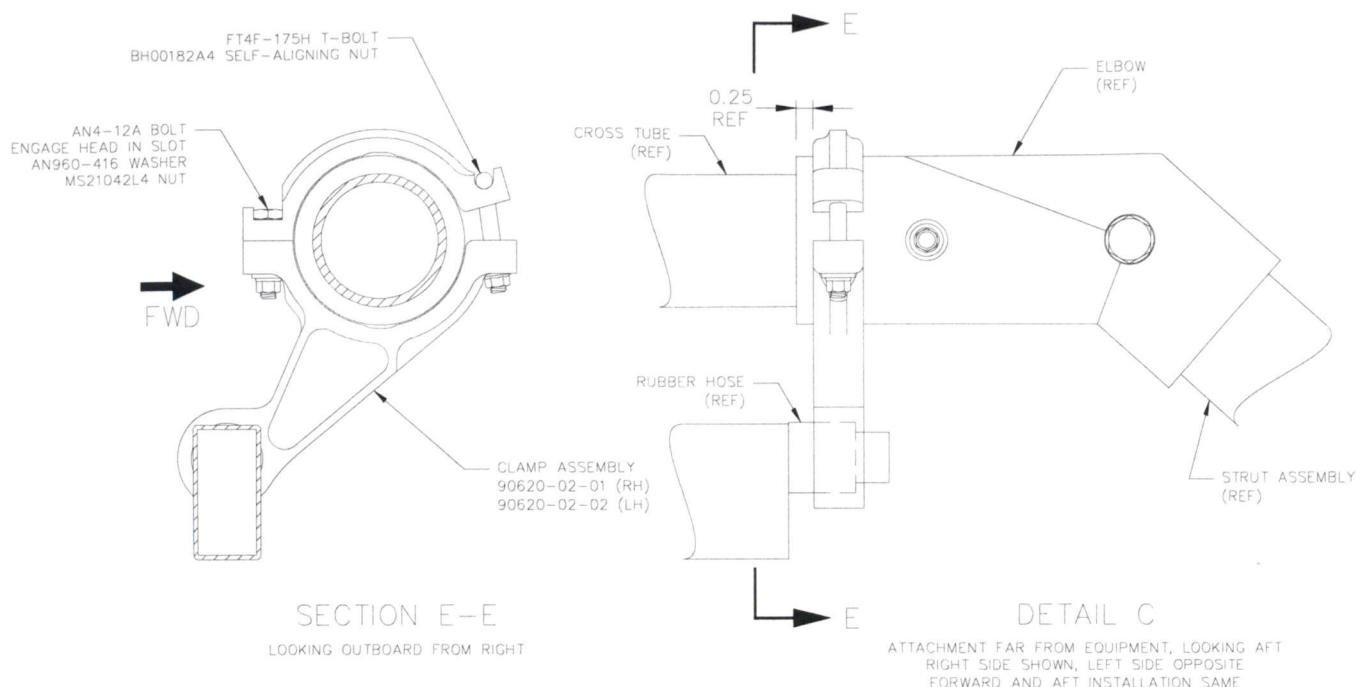


Figure 25.3 – Clamp Assembly Installation (Far Side)

5. Remove Rubber Hose from Forward and Aft Beams and insert into Far Clamp Assemblies.
6. Slide pin on far end of Forward Beam Assembly (90630-01-01 RH, -02 LH) into rubber hose in Far Clamp Assembly on forward cross tube. Rubber hose may be lubricated with soap and water if required. Insert AN6-21A Bolt with AN960-616 Washer through bushing in Forward Beam into hole in Close Clamp Assembly. Shift clamps inboard or outboard as required, maintain approximately equal distance from clamp to edge of elbow. Install AN960-616 Washer and MS21044N6 Nut on bolt. Torque AN6 bolt to 160-190 in-lbs.
7. Slide pin on far end of Aft Beam Assembly (90631-01-00) into rubber hose in Far Clamp Assembly on aft cross tube. Rubber hose may be lubricated with soap and water if required. Insert AN6-21A Bolt with AN960-616 Washer through bushing in Aft Beam into hole in Close Clamp Assembly. Install AN960-616 Washer and MS21044N6 Nut on bolt. Torque AN6 bolt to 160-190 in-lbs.
8. Adjust beams as to be parallel to cross tubes with a 1" gap between the beam and cross tube. Rotate the far clamp only to adjust for parallel, then rotate both clamps together to attain 1" gap. Loosen clamps as required, re-tighten after.
9. Torque bolts on Clamp Assemblies to 50-70 in-lbs.



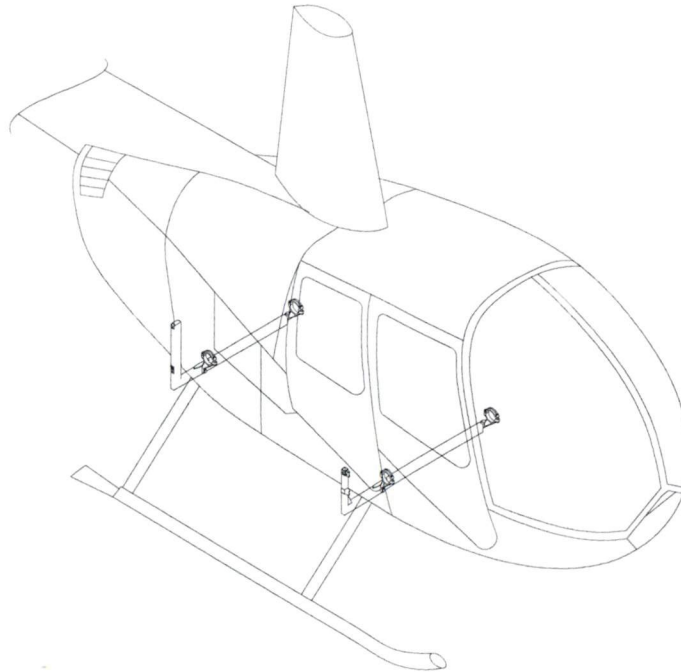
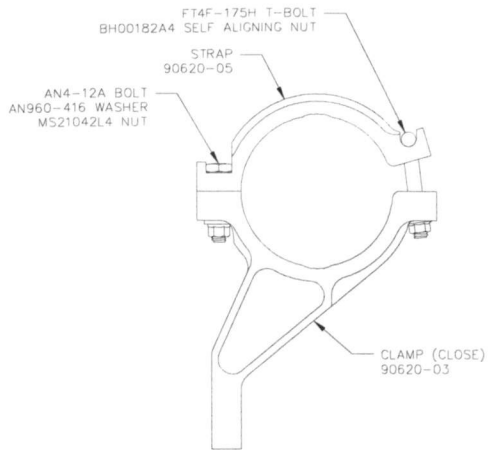
**25-3 BILL OF MATERIALS**

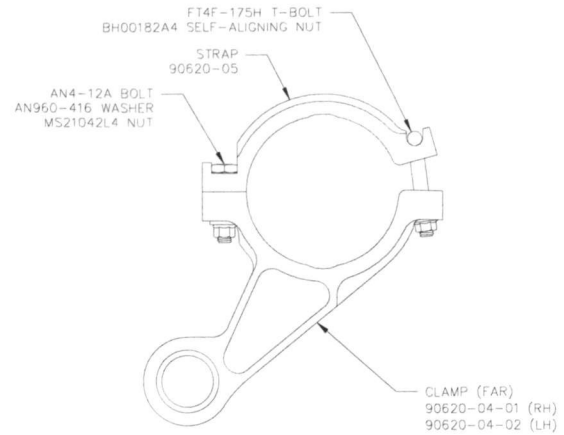
Figure 25.4 – Attachment Provisions Installation

Qty.	Part Number	Description
1	90602-01-01	Attachment Provisions Installation – RH
1	90602-01-02	Attachment Provisions Installation – LH
. 2	90620-01-00	Clamp Assembly (Close)
. 1	90620-02-01	Clamp Assembly (Far, RH)
. 1	90620-02-02	Clamp Assembly (Far, LH)
. 1	90630-01-01	Forward Beam Assembly (RH)
. 1	90630-01-02	Forward Beam Assembly (LH)
. 1	90631-01-00	Aft Beam Assembly
. 2	AN6-21A	Bolt
. 2	AN960-616	Washer
. 2	MS21044N6	Nut





90620-01-00 CLAMP ASSEMBLY  
(CLOSE)



90620-02-XX CLAMP ASSEMBLY  
(FAR)

Figure 25.5 – Clamp Assemblies

Qty.	Part Number	Description
<b>2</b>	<b>90620-01-00</b>	<b>Clamp Assembly (Close)</b>
. 1	90620-03	Clamp (Close)
. 1	90620-05	Strap
. 1	AN4-12A	Bolt
. 1	AN960-416	Washer
. 1	MS21042L4	Nut
. 1	FT4F-175H	T-Bolt
. 1	BH00182A4	Self-Aligning Nut
<b>2</b>	<b>90620-02-01</b>	<b>Clamp Assembly (Far, RH)</b>
. 1	90620-04-01	Clamp (Far, RH)
. 1	90620-05	Strap
. 1	AN4-12A	Bolt
. 1	AN960-416	Washer
. 1	MS21042L4	Nut
. 1	FT4F-175H	T-Bolt
. 1	BH00182A4	Self-Aligning Nut
<b>2</b>	<b>90620-02-02</b>	<b>Clamp Assembly (Far, LH)</b>
. 1	90620-04-02	Clamp (Far, LH)
. 1	90620-05	Strap
. 1	AN4-12A	Bolt
. 1	AN960-416	Washer
. 1	MS21042L4	Nut
. 1	FT4F-175H	T-Bolt
. 1	BH00182A4	Self-Aligning Nut

## 25-4 WEIGHT AND BALANCE

Removal of beams leaving clamps in place is an approved configuration for flight.  
Two weight and balance configurations are required: Clamps only; and Beams and Clamps.

Standard		Weight (lbs)	Longitudinal		Lateral	
P/N	Description		Arm (in)	Moment (in-lbs)	Arm (in)	Moment (in-lbs)
RH Provisions Installation						
90620-XX-XX	Clamp Assemblies	1.6	99.7	159.5	-0.7	-1.0
90630-01-01	Forward Beam Assembly	5.0	74.2	371.0	8.3	41.5
90631-01-00	Aft Beam Assembly	5.0	128.8	644.0	8.7	43.5
90602-01-01	RH Provisions Installation (Total)	11.6	101.3	1174.5	7.2	84.0
LH Provisions Installation						
90620-XX-XX	Clamp Assemblies	1.6	99.7	159.5	0.7	1.0
90630-01-02	Forward Beam Assembly	5.0	74.2	371.0	-8.3	-41.5
90631-01-00	Aft Beam Assembly	5.0	128.8	644.0	-8.7	-43.5
90602-01-02	LH Provisions Installation (Total)	11.6	101.3	1174.5	-7.2	-84.0

Metric		Weight (kg)	Longitudinal		Lateral	
P/N	Description		Arm (mm)	Moment (mm-kg)	Arm (mm)	Moment (mm-kg)
RH Provisions Installation						
90620-XX-XX	Clamp Assemblies	0.7	2532	1833	-17	-12
90630-01-01	Forward Beam Assembly	2.3	1885	4264	211	477
90631-01-00	Aft Beam Assembly	2.3	3226	7298	221	500
90602-01-01	RH Provisions Installation (Total)	5.3	2552	13396	184	965
LH Provisions Installation						
90620-XX-XX	Clamp Assemblies	0.7	2532	1833	17	12
90630-01-02	Forward Beam Assembly	2.3	1885	4264	-211	-477
90631-01-00	Aft Beam Assembly	2.3	3226	7298	-221	-500
90602-01-02	LH Provisions Installation (Total)	5.3	2552	13396	-184	-965

## 25-5 STRUCTURAL FASTENER DATA

Refer to Robinson R44 Maintenance Manual, section 1.300 for torque values not listed in this ICA.

# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

## APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

### BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Cargo Basket Installation on Robinson R44, R44 II
Certification Basis of design change and revision date:	FAR 27, Amendment 27-24
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 906.92)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 90601

### BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.2 (a) Manual(s)</b> (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Single Manual (ICA906.92)
<b>A527.2 (b) Practical arrangement</b> (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Arranged in ATA format
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (a) Rotorcraft maintenance manual or section</b>		
<b>A527.3 (a) (1) (Introduction)</b> (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.000	Supplemental ICA ref: Section 0-1
<b>A527.3 (a) (2) (Description)</b> (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.007	Supplemental ICA ref: Section 0-5



### MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (a) (3) Control &amp; Operation</b> (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (a) (4) Servicing</b> (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.100	Supplemental ICA ref: N/A
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (b) Maintenance Instructions.</b>		
<b>A527.3 (b) (1) Scheduling</b> 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.101	Supplemental ICA ref: Section 5-1
<b>A527.3 (b) (2) Troubleshooting</b> (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A



# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (b) (3) Removal/replacement</b> (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 4	Supplemental ICA ref: Section 25-1 and 25-2
<b>A527.3 (b) (4) General</b> (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.200	Supplemental ICA ref: Section 25-3
<b>A527.3 (c) Access</b> (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (d) Special inspections</b> (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-1
<b>A527.3 (e) Protective treatment</b> (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-3
<b>A527.3 (f) Fasteners, torque values, etc</b> (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.300	Supplemental ICA ref: Section 25-4
<b>A527.3 (g) Special tools</b> (g) A list of special tools needed.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 16	Supplemental ICA ref: N/A

## MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

### BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

#### A527.4 AWL - Separate Section 1

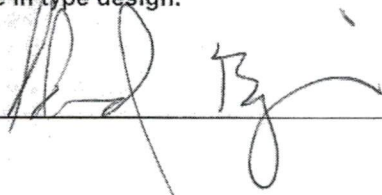
The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."

ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, single page before Section 1

Supplemental ICA ref: Chapter 4

### BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

Applicants Signature:  Date: September 23, 2010

Applicants Name: E. Burgoin, P.Eng, DAR 290M

### BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: \_\_\_\_\_ Phone # \_\_\_\_\_ Email: \_\_\_\_\_ Mail Routing Symbol: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ NAPA Number \_\_\_\_\_



# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

## APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

### BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Mounting Provisions on Robinson R44, R44 II
Certification Basis of design change and revision date:	FAR 27, Amendment 27-24
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 906.91)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 90602

### BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.2 (a) Manual(s)</b> (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Single Manual (ICA906.91)
<b>A527.2 (b) Practical arrangement</b> (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460	Supplemental ICA ref: Arranged in ATA format
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (a) Rotorcraft maintenance manual or section</b>		
<b>A527.3 (a) (1) (Introduction)</b> (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.000	Supplemental ICA ref: Section 0-1
<b>A527.3 (a) (2) (Description)</b> (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.007	Supplemental ICA ref: Section 0-5

# MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (a) (3) Control &amp; Operation</b> (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (a) (4) Servicing</b> (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.100	Supplemental ICA ref: N/A
<b>A527.3</b> The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
<b>A527.3 (b) Maintenance Instructions.</b>		
<b>A527.3 (b) (1) Scheduling</b> 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.101	Supplemental ICA ref: Section 5-1
<b>A527.3 (b) (2) Troubleshooting</b> (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A



### MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
<b>A527.3 (b) (3) Removal/replacement</b> (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 4	Supplemental ICA ref: Section 25-1 and 25-2
<b>A527.3 (b) (4) General</b> (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.200	Supplemental ICA ref: Section 25-4
<b>A527.3 (c) Access</b> (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
<b>A527.3 (d) Special inspections</b> (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-1
<b>A527.3 (e) Protective treatment</b> (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 2.500	Supplemental ICA ref: Section 5-3
<b>A527.3 (f) Fasteners, torque values, etc</b> (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 1.300	Supplemental ICA ref: Section 25-5
<b>A527.3 (g) Special tools</b> (g) A list of special tools needed.	ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, Section 16	Supplemental ICA ref: N/A

## MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

### BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

#### A527.4 AWL - Separate Section 1

The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."

ICA ref: Robinson R44 Maintenance Manual and ICA RTR460, single page before Section 1

Supplemental ICA ref: Chapter 4

### BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

Applicants Signature: \_\_\_\_\_

Date: September 23, 2010

Applicants Name: E. Burgoin, P.Eng, DAR 290M

### BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: \_\_\_\_\_ Phone # \_\_\_\_\_ Email: \_\_\_\_\_ Mail Routing Symbol: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ NAPA Number \_\_\_\_\_

**AERO Design Ltd.**

**FLIGHT TEST PLAN**

**FTP906.03**

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**ROBINSON R44**

**QUICK RELEASE CARGO BASKET**

Prepared by: J. Clarke, CET

Approved by: E. Burgoin, P.Eng., DAR 290M

Revision 0, 23 September 2010

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## **1.0 INTRODUCTION**

The Quick Release Cargo Basket is mounted on the right or left side of the helicopter. The basket is made from steel tubing and expanded steel mesh. It is quickly detachable from the mounting beams that support it.

## **2.0 REFERENCE TEXT**

AERO Design Ltd. Installation Drawings 90601, 90602  
AERO Design Ltd. Flight Manual Supplement FMS906.90  
Robinson R44 Rotorcraft Flight Manual

## **3.0 FLIGHT TEST OBJECTIVE**

Flight testing of the Quick Release Cargo Basket is meant to demonstrate that the installation is free of excessive vibration at speeds from hover thru to  $V_d$ , and does not produce undesirable effects to the handling and performance qualities of the helicopter.

This flight testing is in advance of flight testing by Transport Canada Flight Test Division in support of obtaining a Supplemental Type Certificate.

## **4.0 TEST PREPARATION**

### **4.1 Instrument Calibration**

The maintenance records of the test helicopter will be checked to ensure the airspeed indicator has been calibrated within the specified time period.

### **4.2 Equipment**

The helicopter will be fitted with the Quick Release Mounting Provisions in accordance with drawing 90602 on the right or left side as applicable.

The helicopter will be fitted with the Quick Release Cargo Basket installation in accordance with drawing 90601 on the right or left side as applicable.

### **4.3 Flight Test Crew**

Two crew members will be required for the test:

- 1) Pilot with training and experience appropriate to the task of testing this equipment.
- 2) Test observer, either a DAR or a qualified alternate appointed by him, beside the pilot.

All members of the crew will be equipped to communicate via intercom.

Seating arrangement of the observer(s) may be limited by loading requirements.

### **4.4 Documents**

These test flights require a FLIGHT PERMIT issued by Transport Canada.

The draft Flight Manual Supplement shall be on board the aircraft.

The Pilot will familiarize himself with the contents of this Test Plan and the Flight Manual Supplement prior to flight.

### **4.5 Weight and Balance**

The helicopter will be loaded with sufficient fuel and ballast to produce the following conditions for flight:

- A) GW below 2200 lbs and Cargo Basket installed on the right (90601-01-01), basket empty
- B) Cargo Basket installed on the right (90601-01-01), basket loaded with 200 lbs.
- C) GW below 2200 lbs and Cargo Basket installed on the left (90601-01-02), basket empty
- D) Cargo Basket installed on the left (90601-01-02), basket loaded with 200 lbs.

C of G must remain within the limits specified in the Flight Manual.

Loading information specific to the Quick Release Cargo Basket is contained in the Flight Manual Supplement, FMS906.91. The basket will be loaded to 200 lbs.

## 5.0 FLIGHT TESTS

One flight is required for each of the conditions listed in 4.5 above.

The flights are to be conducted as follows:

Take off and establish cruise at 50 kts. Increase speed in 10 kt increments up to Vne. Recover from Vne, then accelerate to Vd ( $1.1 \times Vne$ ).

Vne as follows:

NEVER EXCEED SPEED - KIAS								
2200 LB TOGW & BELOW								
PRESS ALT-FT	OAT - °C							
	-30	-20	-10	0	10	20	30	40
SL								
2000	130						127	123
4000					126	122	118	114
6000				126	122	117	113	108
8000	126	122	117	112	107	101	96	91
10000	117	112	106	101	95	90	85	
12000	107	101	95	89	NO FLIGHT			
14000	95	89						
OVER 2200 LB TOGW, SUBTRACT 10 KIAS FOR AUTOROTATION, SUBTRACT 30 KIAS								

Note that gross weight with basket loaded will exceed 2200 lbs, reduce Vne by 10 kts accordingly.

## 6.0 RECORDING OF RESULTS

Check (✓) if acceptable.

	Airspeed (kts)											
Configuration	50	60	70	80	90	100	110	120	Vne	Vd		
Right, empty												
Right, loaded												
Left, empty												
Left, loaded												

Observations:

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**AERO Design Ltd.**

**ENGINEERING REPORT**

**ER906.01**

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**ROBINSON R44 SERIES**

**QUICK RELEASE CARGO BASKET**

Prepared by: Jeff Clarke, CET

Approved by: E. Burgoin, P.Eng., DAR 290M

Revision 0, 21 September 2010

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## 1.0 INTRODUCTION

It is desirable to keep excess and possible dirty equipment out of the cabin of the helicopter. Existing cargo pods on the Robinson R44 are made of fibre-glass and mount between the skid tube and the fuselage with a sliding arrangement to allow the cross tube to flex. This position is too low for operators landing off field in the bush, and the construction is also prone to damage.

A basket incorporating features of the AERO Design Ltd. Bell 206L/407 and Eurocopter AS350/AS355 series cargo basket configurations has been produced. The aluminum mounting provisions attach to the existing cross tube corner forgings using a clamp arrangement similar to the AS350 configuration. Stainless steel beams are bolted to the clamps, similar to the Bell 206L/407 configuration. In order for the landing gear cross tubes to flex, a rubber mount is incorporated into the beam attachment.

This document shows the installation of the quick release mounting provisions and cargo basket are in compliance with the regulations detailed in the Aero Design Ltd. Compliance Program CP906.

## 2.0 REFERENCE TEXT

AERO Design Ltd. Drawing 90601, 90602  
MIL-HDBK-5J

## 3.0 BASIS OF CERTIFICATION

Robinson R44 series, TCDS H-97 (H11NM):

FAR 27, dated 1 February 1965, including amendments 27-1 thru 27-24. Exemption to 27.955(a)(7), 27.1305(q), 27.695.

*This report demonstrates that the installation of the Quick Release Mounting Provisions and Cargo Basket complies with the original basis of certification.*

## 4.0 APPLICABILITY OF AIRWORTHINESS DIRECTIVES

Airworthiness Directives applicable to the Robinson R44 series were reviewed, and none were found to affect this project.

## 5.0 LOADS

Robinson R44, R44 II, FAR 27, amdt. 27-24:

FAR 27.625	Fitting Factor (does not apply to articles being tested):	$n_{ff} := 1.15$
FAR 27.303	Safety Factor:	$n_{sf} := 1.5$
FAR 27.337(a)	Limit Positive Maneuvering Load Factor:	$n_{man} := 3.5$
$n_{man\_ult} := n_{man} \cdot n_{sf}$	Ultimate Positive Maneuvering Load Factor:	$n_{man\_ult} = 5.25$
	Limit Negative Maneuvering Load Factor:	$n_{man\_neg} := -1.0$
$n_{man\_neg\_u} := n_{man\_neg} \cdot n_{sf}$	Ultimate Negative Maneuvering Load Factor:	$n_{man\_neg\_u} = -1.5$

### CRITICAL ULTIMATE LOAD FACTORS:

Downward:	Ultimate Positive Maneuvering Load Factor:	$n_{man\_ult} = 5.25$
Upward:	Ultimate Negative Maneuvering Load Factor:	$n_{man\_neg\_u} = -1.5$

Note: The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Negative Maneuvering Load Factor is used in the tests to ensure that the lid of the basket does not open in flight.

### 5.1 Inertia Loads

In order to determine the ultimate strength of the mounting provisions, different cargo loads are tested.

150 lbs. Cargo:

$W_{basket} := 42\text{ lbf}$	Weight of basket configuration 90610-01
$W_{cargo} := 150\text{ lbf}$	Weight of cargo (max)
$P_{basket} := W_{basket} + W_{cargo}$	
$P_{basket} = 192\text{ lbf}$	Combined weight of basket and cargo
$P_{lim\_man} := P_{basket} \cdot n_{man}$	
$P_{lim\_man} = 672\text{ lbf}$	Limit maneuvering load
$P_{ult\_man} := P_{basket} \cdot n_{man\_ult}$	
$P_{ult\_man} = 1008\text{ lbf}$	Ultimate maneuvering load

$$P_{lim\_cargo\_neg} := W_{cargo} \cdot n_{man\_neg}$$

$$P_{lim\_cargo\_neg} = -150\text{ lbf}$$

Limit negative maneuvering load due to cargo

$$P_{ult\_cargo\_neg} := W_{cargo} \cdot n_{man\_neg\_u}$$

$$P_{ult\_cargo\_neg} = -225\text{ lbf}$$

Ultimate negative maneuvering load due to cargo

**175 lbs. Cargo:**

$$W_{basket} := 42\text{ lbf}$$

Weight of basket configuration 90610-01

$$W_{cargo} := 175\text{ lbf}$$

Weight of cargo (max)

$$P_{basket} := W_{basket} + W_{cargo}$$

$$P_{basket} = 217\text{ lbf}$$

Combined weight of basket and cargo

$$P_{lim\_man} := P_{basket} \cdot n_{man}$$

$$P_{lim\_man} = 759.5\text{ lbf}$$

Limit maneuvering load

$$P_{ult\_man} := P_{basket} \cdot n_{man\_ult}$$

$$P_{ult\_man} = 1139.2\text{ lbf}$$

Ultimate maneuvering load

$$P_{lim\_cargo\_neg} := W_{cargo} \cdot n_{man\_neg}$$

$$P_{lim\_cargo\_neg} = -175\text{ lbf}$$

Limit negative maneuvering load due to cargo

$$P_{ult\_cargo\_neg} := W_{cargo} \cdot n_{man\_neg\_u}$$

$$P_{ult\_cargo\_neg} = -262.5\text{ lbf}$$

Ultimate negative maneuvering load due to cargo

**200 lbs. Cargo:**

$$W_{basket} := 42\text{ lbf}$$

Weight of basket configuration 90610-01

$$W_{cargo} := 200\text{ lbf}$$

Weight of cargo (max)

$$P_{basket} := W_{basket} + W_{cargo}$$

$$P_{basket} = 242\text{ lbf}$$

Combined weight of basket and cargo

$$P_{lim\_man} := P_{basket} \cdot n_{man}$$

$$P_{lim\_man} = 847\text{ lbf}$$

Limit maneuvering load

$$P_{ult\_man} := P_{basket} \cdot n_{man\_ult}$$

$$P_{ult\_man} = 1270.5\text{ lbf}$$

Ultimate maneuvering load



$$P_{lim\_cargo\_neg} := W_{cargo} \cdot n_{man\_neg}$$

$$P_{lim\_cargo\_neg} = -200\text{ lbf}$$

Limit negative maneuvering load due to cargo

$$P_{ult\_cargo\_neg} := W_{cargo} \cdot n_{man\_neg\_u}$$

$$P_{ult\_cargo\_neg} = -300\text{ lbf}$$

Ultimate negative maneuvering load due to cargo

## 5.2 Aerodynamic Drag Load

$$l_{basket} := 75.5\text{ in}$$

Length of basket.

$$w_{basket} := 22.5\text{ in}$$

Width of basket (analyzed as rectangular frontal area).

$$h_{basket} := 17.25\text{ in}$$

Height of basket.

$$A_f := 370\text{ in}^2$$

Frontal Area of basket.

$$A_p := l_{basket} \cdot w_{basket}$$

$$A_p = 1699\text{ in}^2$$

Planar Area of basket.

$$\frac{l_{basket}}{w_{basket}} = 3.4$$

Fineness ratio of basket

$$C_{Do} := 1.1$$

Drag Coefficient of Basket, (overestimated)  
(Ref. Hoerner, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \frac{\text{slug}}{\text{ft}^3}$$

Density of air at Sea Level.

$$V_{ne} := 130\text{ knots}$$

Never-Exceed-Speed of Robinson R44.  
(Ref. R44 TCDS H-97)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 144\text{ knots}$$

Design Dive Speed of Robinson R44

$$P_{drag} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f \cdot C_{Do}$$

$$P_{drag} = 200\text{ lbf}$$

Limit Drag on basket.

$$P_{drag\_ult} := P_{drag} \cdot n_{sf}$$

$$P_{drag\_ult} = 300\text{ lbf}$$

Ultimate Drag load on basket

## 6.0 STRUCTURAL COMPLIANCE

Structural compliance is demonstrated by test.

The Quick Release Mounting Provisions were installed on a scrap helicopter in accordance with drawing 90602. A cargo basket fabricated in accordance with drawing 90611 and 90612 was installed on the Mounting Provisions in accordance with drawing 90601.

The maneuvering loads are applied by stacking bags of lead shot inside the basket. The basket weight applies 1g down (42 lbs). The drag load is applied by pulling aft on the basket with a chain come-along attached to a load cell.

### 6.1 Limit Load

$$P_{lim\_man} = 672 - 42 = 630 \text{ lbs}$$

Limit maneuvering load, 150 lbs cargo

$$P_{lim\_man} = 759.5 - 42 = 717.5 \text{ lbs}$$

Limit maneuvering load, 175 lbs cargo

$$P_{lim\_man} = 847 - 42 = 805 \text{ lbs}$$

Limit maneuvering load, 200 lbs cargo

$$P_{drag\_lim} = 200 \text{ lbs}$$

Limit drag load

The basket was loaded with 625 lbs of lead shot (25 bags), and pulled aft 210 lbs. Deflection was not excessive, so the test continued to 725 lbs (29 bags). Deflection was not excessive, so the test continued to 800 lbs (32 bags). The drag load applied throughout was 210 lbs.

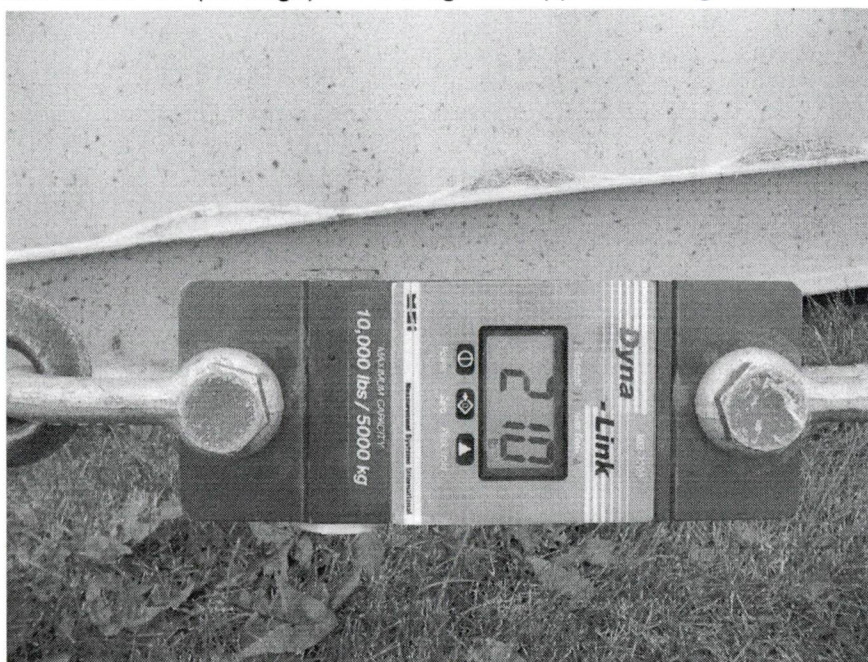


Figure 6.1.1 – Limit Drag Load





Figure 6.1.2 – Limit Maneuvering Load, 200 lbs Cargo



Figure 6.1.3 – Deflection at Limit Maneuvering Load



The drag load was released and the bags of lead shot were removed from the basket. The installation was checked for signs of permanent deformation or failure. There was no permanent deformation found in the basket, beams or attachments. The attachments did not shift on the cross tube elbows.

## 6.2 Ultimate Load

$P_{ult\_man} = 1008 - 42 = 966$  lbs      Ultimate maneuvering load, 150 lbs cargo

$P_{ult\_man} = 1139.2 - 42 = 1097.2$  lbs      Ultimate maneuvering load, 175 lbs cargo

$P_{ult\_man} = 1270.5 - 42 = 1228.5$  lbs      Ultimate maneuvering load, 200 lbs cargo

$P_{drag\_ult} = 300$  lbs      Ultimate drag load

The basket was loaded with 975 lbs of lead shot (39 bags) and pulled aft 350 lbs.

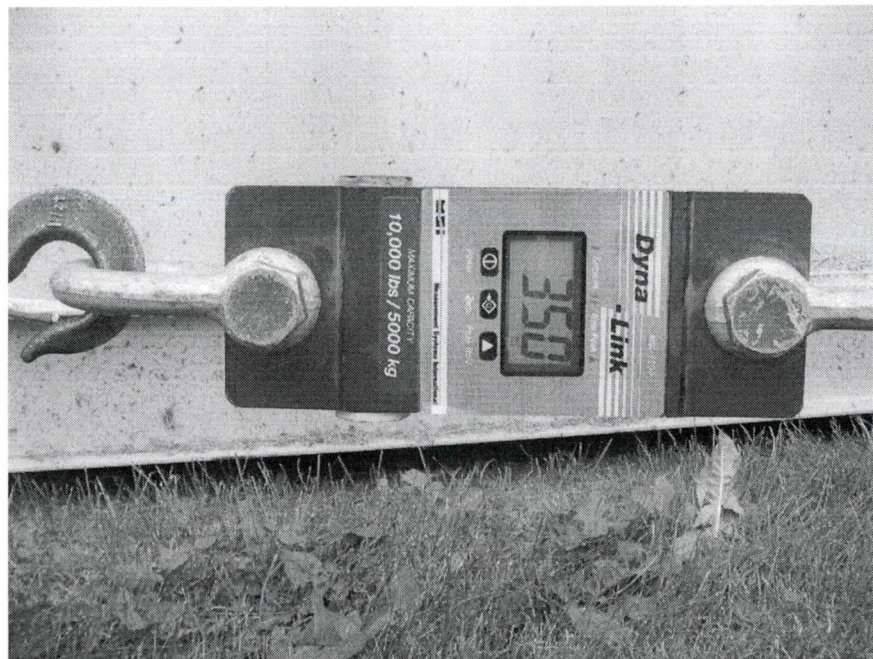


Figure 6.2.1 – Ultimate Drag Load

More than three seconds elapsed, then the beams were inspected for signs of failure. There were no signs of failure found.

Loading continued to 1100 lbs (44 bags) with 350 lbs pulled aft. After 3 seconds had elapsed, the bags of shot shifted outboard, since the basket was leaning down under the load. The aft beam failed at the lower basket attachment, which then caused the forward beam to fail at the connection of the vertical tube to the horizontal tube. This demonstrated the installation for a cargo load of 175 lbs maximum.



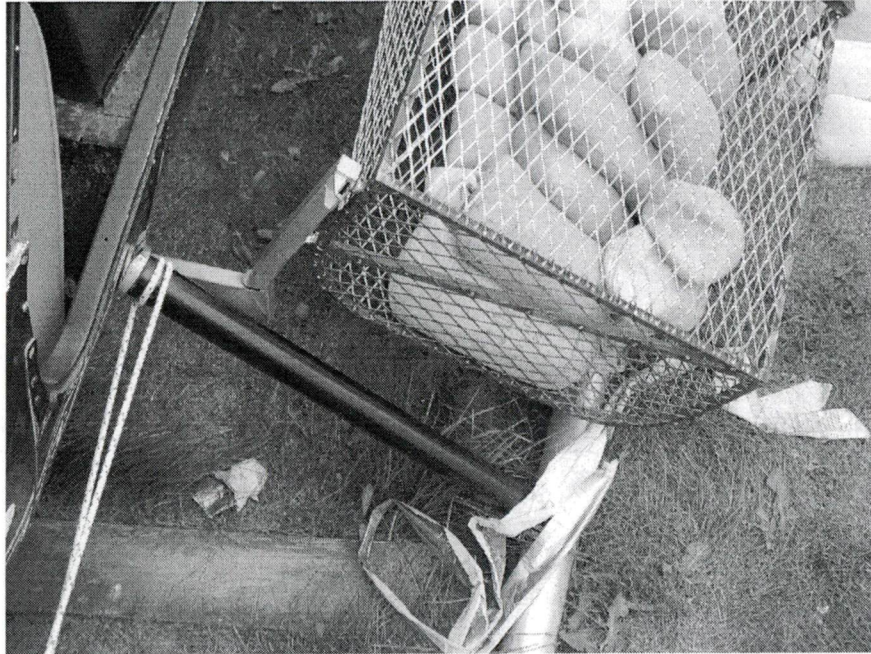


Figure 6.2.2 – Forward Beam Failure



Figure 6.2.3 – Aft beam Failure



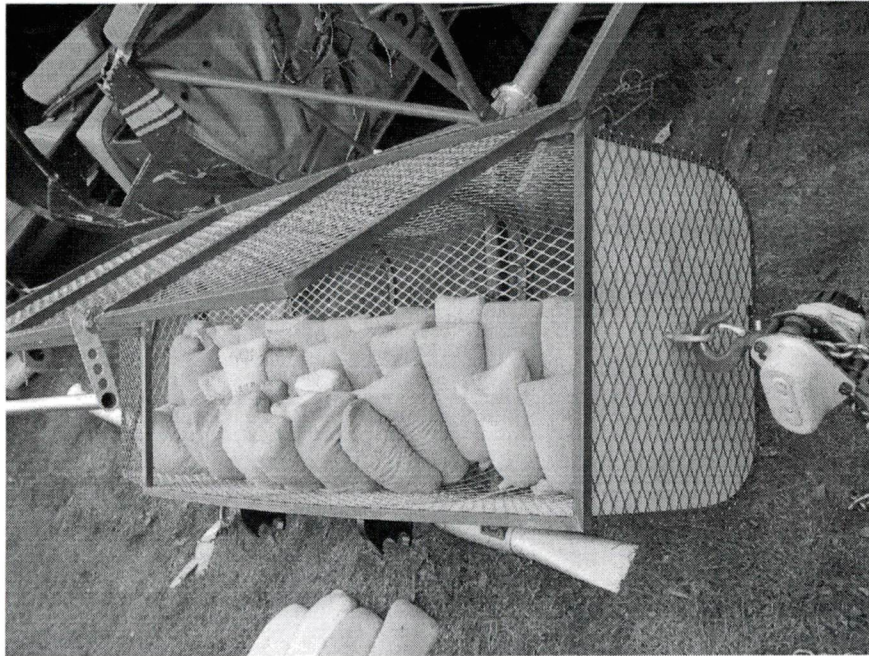


Figure 6.2.4 – Ultimate Maneuvering Load at Failure

In light of the failure, the beams are modified as follows:

- The aft beam vertical tube is changed from a 1" x 0.065" square tube to a 2" x 1" x 0.065" rectangular tube, the same as used in the Eurocopter AS350 cargo basket configuration. See drawing 90631.
- The forward beam is gusseted at the connection from the horizontal to vertical tube. See drawing 90630.

With the changes listed above, the Quick Release Cargo Basket installation is acceptable with a cargo load limit of 175 lbs.

ROBINSON  
MODEL R44 II

SECTION 2  
LIMITATIONS

PLACARDS

In clear view and readable by pilot in flight:

LIMIT MANIFOLD PRESSURE - IN. HG								
MAXIMUM CONTINUOUS POWER								
PRESS	OAT - °C							
ALT-FT	-30	-20	-10	0	10	20	30	40
SL	21.5	21.8	22.1	22.4	22.6	22.9	23.1	23.3
2000	20.9	21.2	21.5	21.8	22.1	22.3	22.5	22.8
4000	20.4	20.7	21.0	21.3	21.5	21.8	22.0	22.2
6000	19.9	20.2	20.5	20.8	21.0	21.3	21.5	21.7
8000	19.5	19.8	20.1	20.3	20.6	20.8	21.0	21.3
10000	19.1	19.4	19.6	19.9	FULL THROTTLE			
12000								
FOR MAX TAKEOFF POWER (5 MIN), ADD 2.8 IN.								

NEVER EXCEED SPEED - KIAS									
2200 LB TOGW & BELOW									
PRESS	OAT - °C								
ALT-FT	-30	-20	-10	0	10	20	30	40	
SL	130						127	123	
2000									
4000					126	122	118	114	
6000				126	122	117	113	108	103
8000	126	122	117	112	107	101	96	91	
10000	117	112	106	101	95	90	85		
12000	107	101	95	89	NO FLIGHT				
14000	95	89							
OVER 2200 LB TOGW, SUBTRACT 10 KIAS FOR AUTOROTATION, SUBTRACT 30 KIAS									

# Quick Release Cargo Basket

$$W_{\text{basket}} := 40 \cdot \text{lbf}$$

Weight of basket configuration 90610-01

$$W_{\text{cargo}} := 200 \cdot \text{lbf}$$

Weight of cargo (max)

$$P_{\text{basket}} := W_{\text{basket}} + W_{\text{cargo}}$$

$$P_{\text{basket}} = 240 \text{ lbf}$$

Combined weight of basket and cargo

$$P_{\text{lim\_man}} := P_{\text{basket}} \cdot n_{\text{man}}$$

$$P_{\text{lim\_man}} = 840 \text{ lbf}$$

Limit maneuvering load

-40 lb for basket 32 bags  
= 800 lb ✓ @ 200 Drag

$$P_{\text{ult\_man}} := P_{\text{basket}} \cdot n_{\text{man\_ult}}$$

$$P_{\text{ult\_man}} = 1260 \text{ lbf}$$

Ultimate maneuvering load

-40 lb for basket  
= 1220 lb 49 bags

$$P_{\text{lim\_cargo\_neg}} := W_{\text{cargo}} \cdot n_{\text{man\_neg}}$$

$$P_{\text{lim\_cargo\_neg}} = -200 \text{ lbf}$$

Limit negative maneuvering load due to cargo

$$P_{\text{ult\_cargo\_neg}} := W_{\text{cargo}} \cdot n_{\text{man\_neg\_u}}$$

$$P_{\text{ult\_cargo\_neg}} = -300 \text{ lbf}$$

Ultimate negative maneuvering load due to cargo

LID/HANDLE ONLY

$$W_{\text{beam}} := 5.0 \cdot \text{lbf}$$

weight of mounting beam

$$P_{\text{lim\_beam}} := W_{\text{beam}} \cdot n_{\text{man}}$$

$$P_{\text{lim\_beam}} = 17.5 \text{ lbf}$$

Limit load due to weight of beam

$$P_{\text{ult\_beam}} := P_{\text{lim\_beam}} \cdot n_{\text{sf}}$$

$$P_{\text{ult\_beam}} = 26.2 \text{ lbf}$$

Ultimate load due to weight of beam

each

150 lb Cargo	lim	665 - 40 = 625 lb	25 bags.
	ult	998 - 40 = 958 lb	39 bags
175 lb Cargo	lim	752.5 - 40 = 712.5 lb	29 bags.
	ult	1129 - 40 = 1089 lb	44 bags ←
			failed
			1100 lb.



## DRAG LOAD ON BASKET

$$l_{\text{basket}} := 75.5 \cdot \text{in}$$

Length of basket.

$$w_{\text{basket}} := 22.5 \cdot \text{in}$$

Width of basket (analyzed as rectangular frontal area).

$$h_{\text{basket}} := 17.25 \cdot \text{in}$$

Height of basket.

$$A_f := 370 \cdot \text{in}^2$$

Frontal Area of basket.

$$A_p := l_{\text{basket}} \cdot w_{\text{basket}}$$

$$A_p = 1699 \text{ in}^2$$

Planar Area of basket.

$$\frac{l_{\text{basket}}}{w_{\text{basket}}} = 3.4$$

Fineness ratio of basket

$$C_{D0} := 1.1$$

Drag Coefficient of Basket, (overestimated)  
(Ref. Hoerner, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \cdot \frac{\text{slug}}{\text{ft}^3}$$

Density of air at Sea Level.

$$V_{ne} := 130 \cdot \text{knots}$$

Never-Exceed-Speed of ~~AS350B3~~ <sup>R44</sup>  
(Ref. ~~AS350~~ <sup>R44</sup> TCDS)  
(Highest of ~~AS350/AS355~~ <sup>R44</sup> Series)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 144 \text{ knots}$$

Design Dive Speed of ~~AS350B3~~ <sup>R44</sup>

$$P_{\text{drag}} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f \cdot C_{D0}$$

$$P_{\text{drag}} = 200 \text{ lbf}$$

Limit Drag on basket.

$$P_{\text{drag\_ult}} := P_{\text{drag}} \cdot n_{sf}$$

$$P_{\text{drag\_ult}} = 300 \text{ lbf}$$

Ultimate Drag load on basket

$$AC_{\text{drag}} := 37.7 \cdot \text{in}$$

Lateral Aerodynamic Center of basket.

Robinson R44, R44 II, FAR 27, amdt. 27-24:

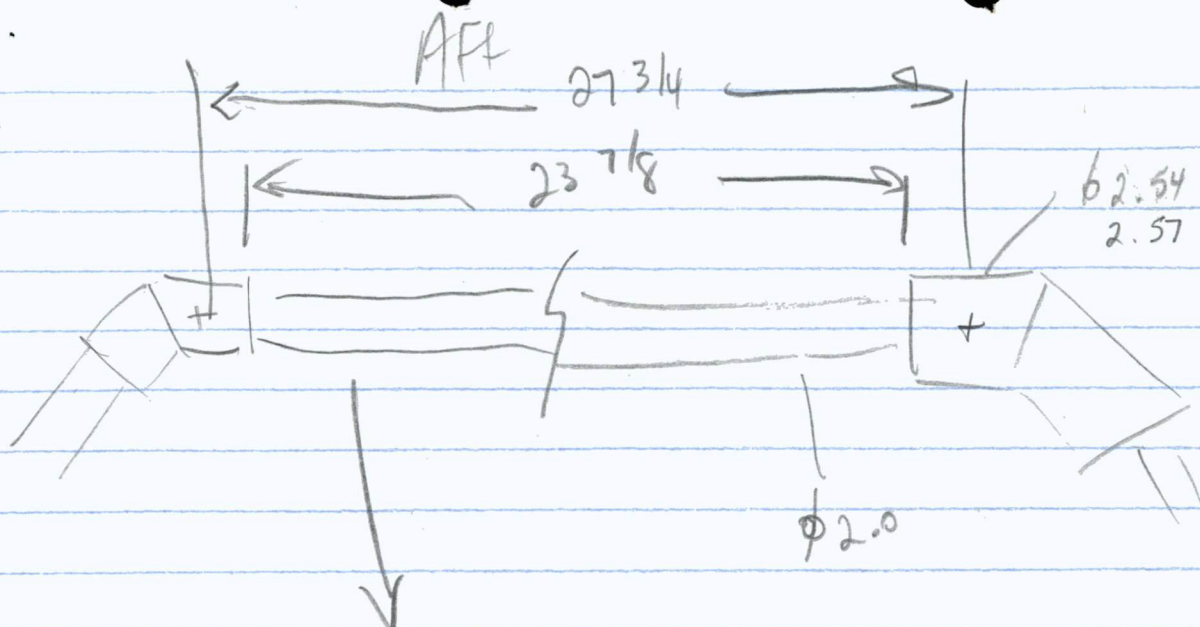
FAR 27.625	Fitting Factor (does not apply to articles being tested):	$n_{ff} := 1.15$
FAR 27.303	Safety Factor:	$n_{sf} := 1.5$
FAR 27.337(a)	Limit Positive Maneuvering Load Factor:	$n_{man} := 3.5$
$n_{man\_ult} := n_{man} \cdot n_{sf}$	Ultimate Positive Maneuvering Load Factor:	$n_{man\_ult} = 5.25$
	Limit Negative Maneuvering Load Factor:	$n_{man\_neg} := -1.0$
$n_{man\_neg\_u} := n_{man\_neg} \cdot n_{sf}$	Ultimate Negative Maneuvering Load Factor:	$n_{man\_neg\_u} = -1.5$

CRITICAL ULTIMATE LOAD FACTORS:

Downward:	Ultimate Positive Maneuvering Load Factor:	$n_{man\_ult} = 5.25$
Upward:	Ultimate Negative Maneuvering Load Factor:	$n_{man\_neg\_u} = -1.5$

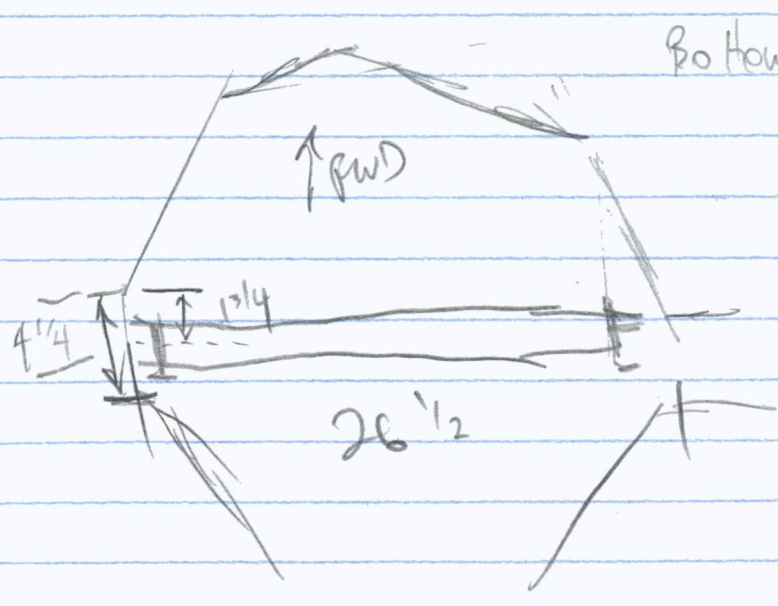
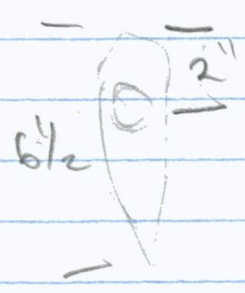
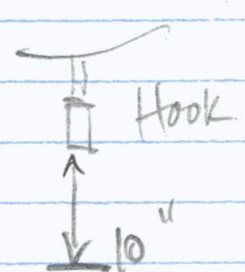
Note: The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Negative Maneuvering Load Factor is used in the tests to ensure that the lid of the basket does not open in flight.

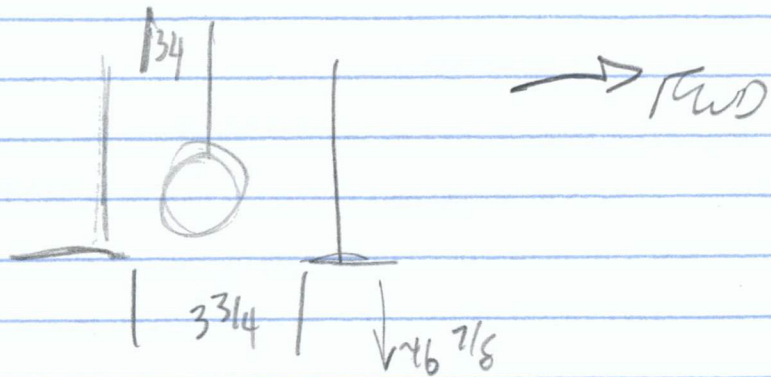


lg or just under centre  
to ground

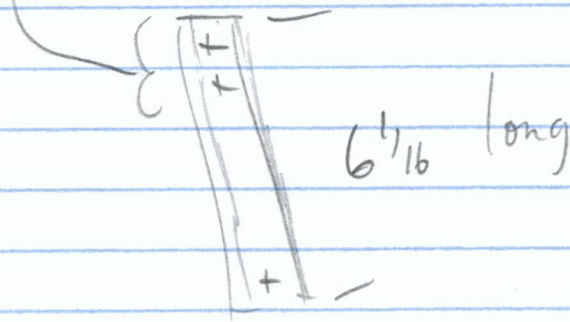
$19 \frac{1}{4}$  @ ends  $\rightarrow$  tube deflects  
down in centre



FWD



2 bolts on aft end

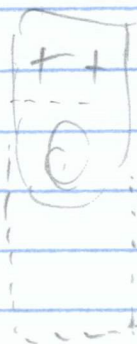


9/16

Possible Rear mount

1.270 0.750

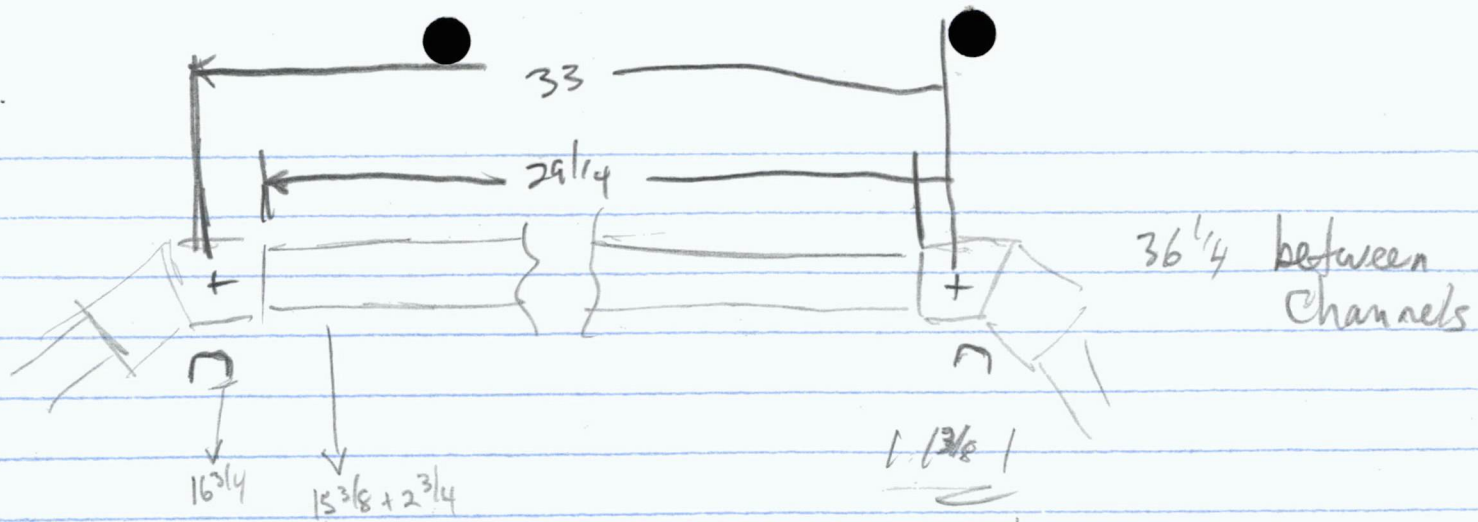
Replace link  
with our own



2.515

0.535





$= 18 \frac{1}{8}$  about the same middle + ends.

FWD

$$14 \frac{1}{8} + 2 \frac{3}{4} = 16 \frac{7}{8}$$

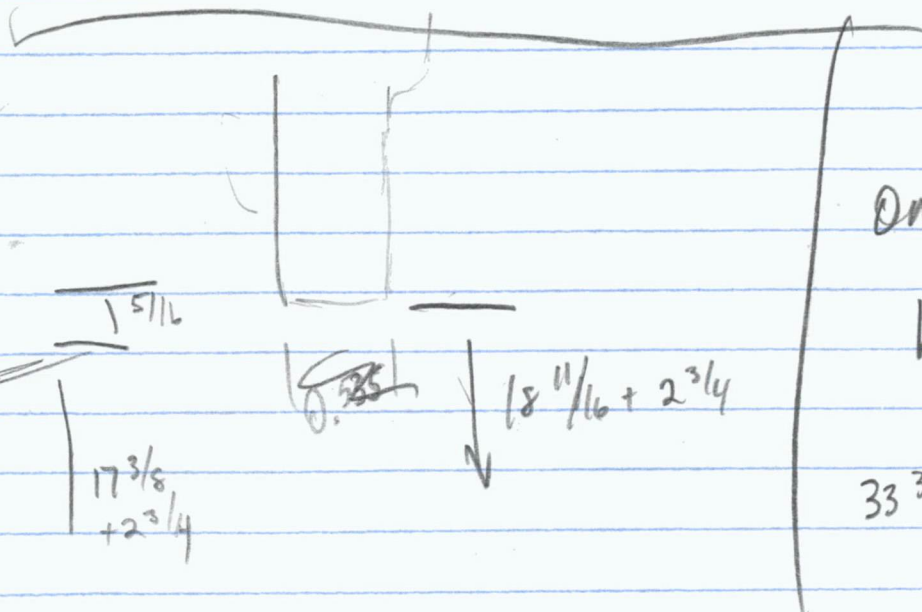
$$4 \frac{7}{8}$$

middle

$$11 \frac{3}{16}$$

$$3 \frac{3}{4}$$

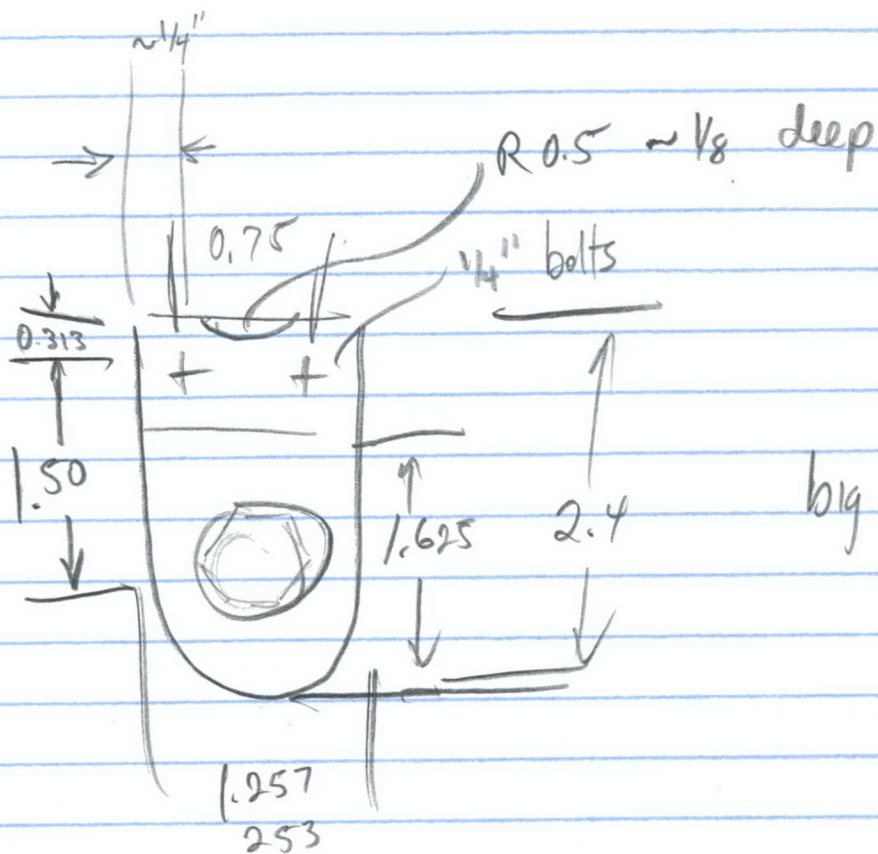
1.25 clearance



on Clipper II

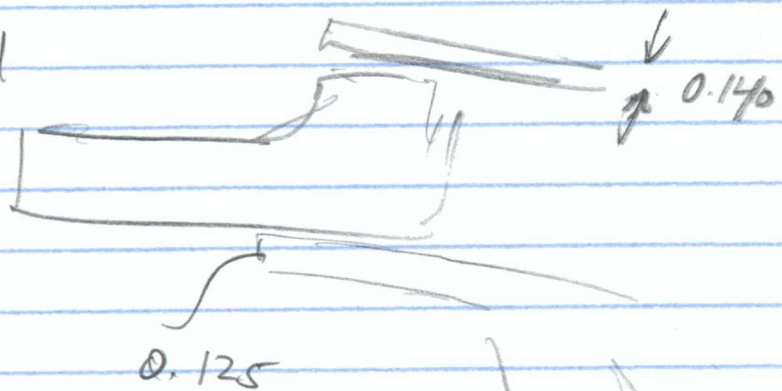
higher ground clearance

$33 \frac{3}{4}$  c/c on large bolts

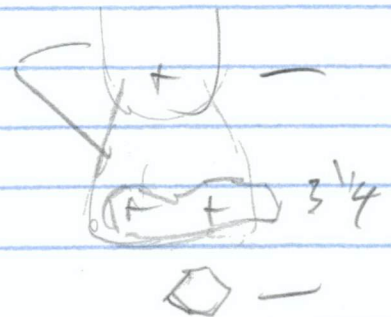
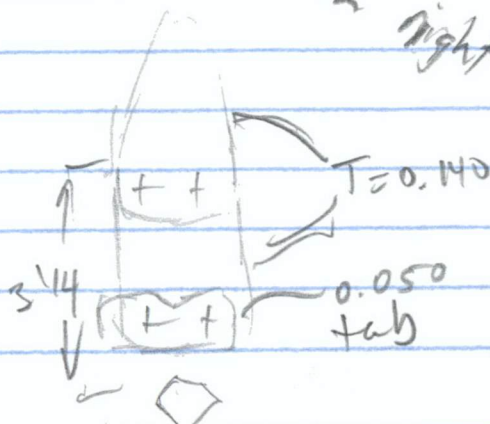
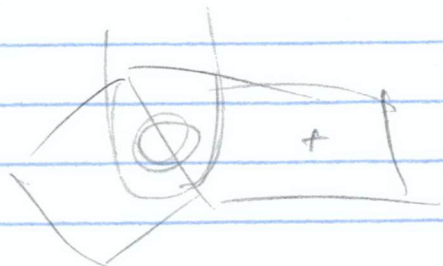


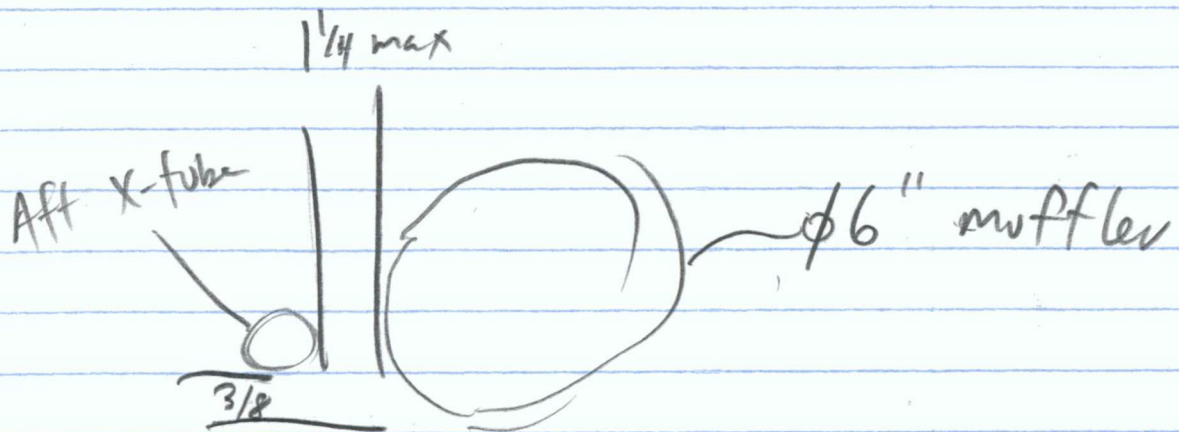
big bolt  $\sim 0.695$  across flats.

looking fwd



Looking ID from right







Water cooler

Line cutter / surveys

14'12" x 25" x 14" x2  
↳ long.

Access to both sides → typically have 3 pax most time

2 Pax	1 Pilot	1 1/2 hr fuel	16/6
	1 Pax L/F		main aux
	Basket	1-1 1/2 hr fuel	gall @ 1.5 hr.
		4 seats	

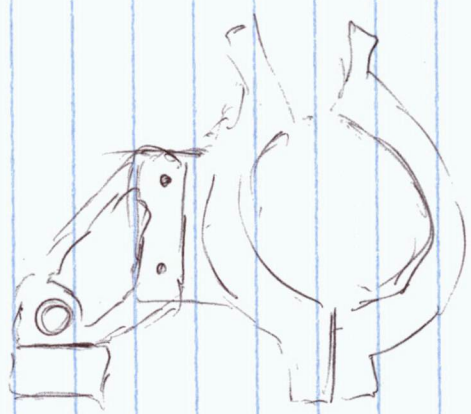
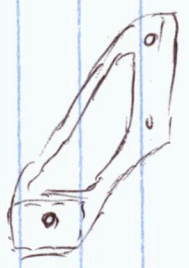
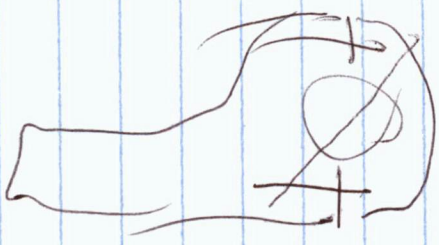
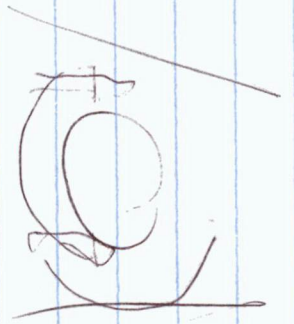
Main / Aux feed together

2 Pax + Pilot + gear. → other pod 2 hrs fuel  
150 lb cargo

Typ 180/200 lb for pax

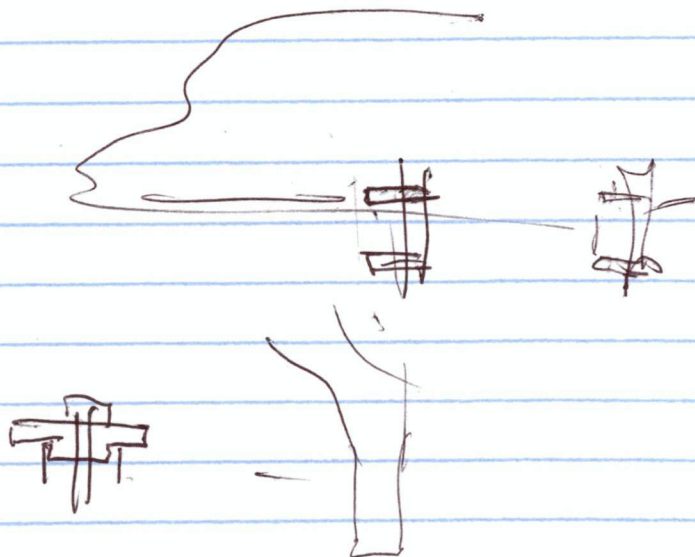
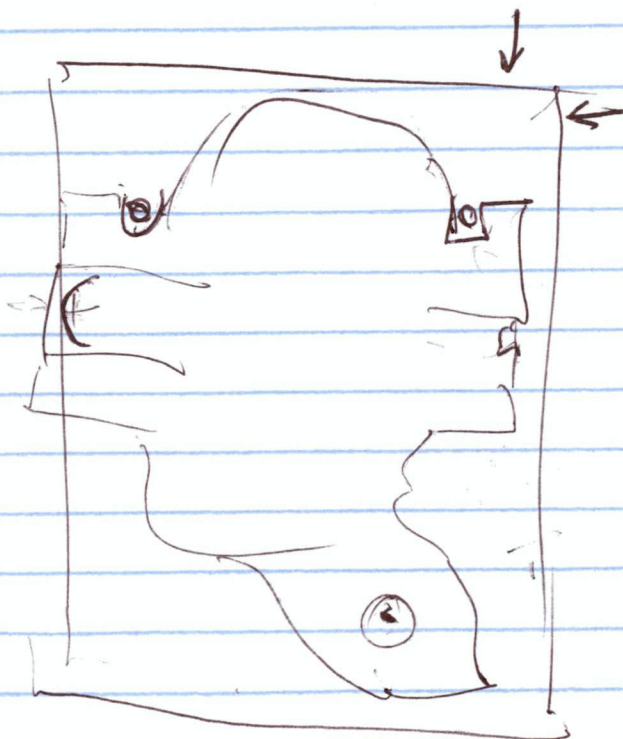
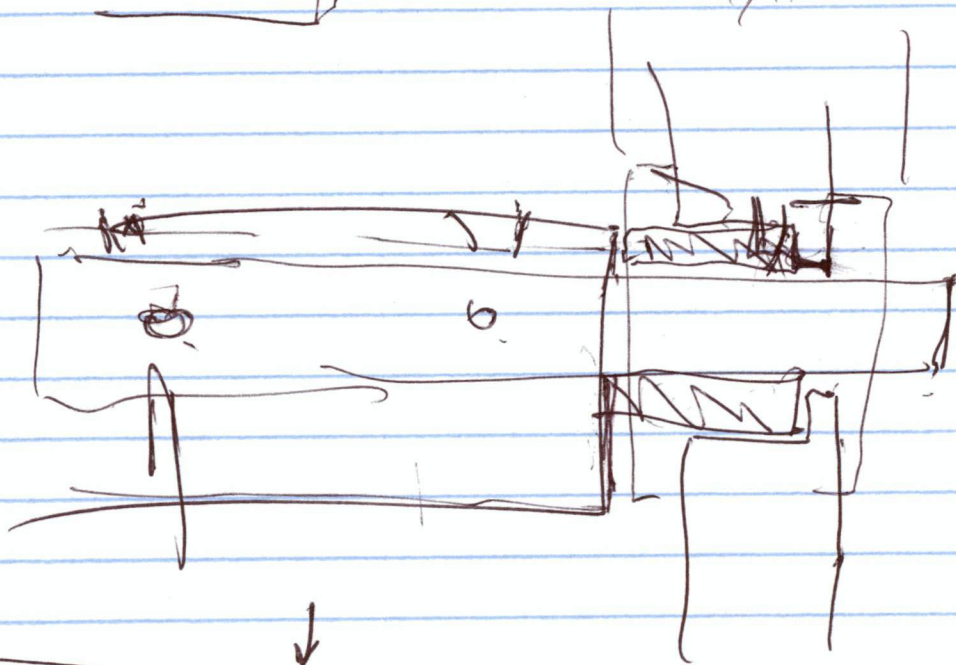
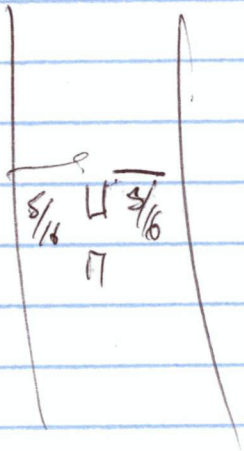
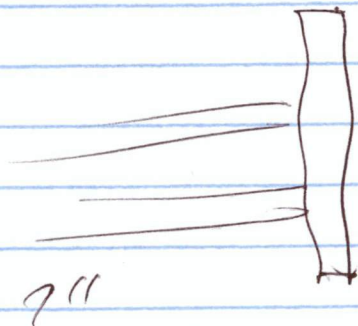
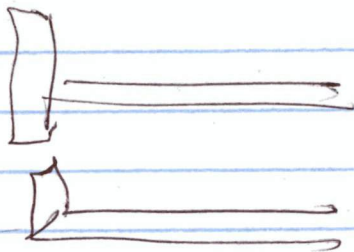
4-6 weeks.

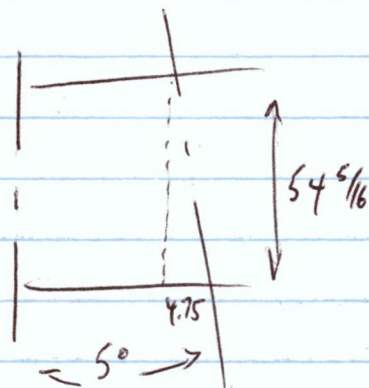
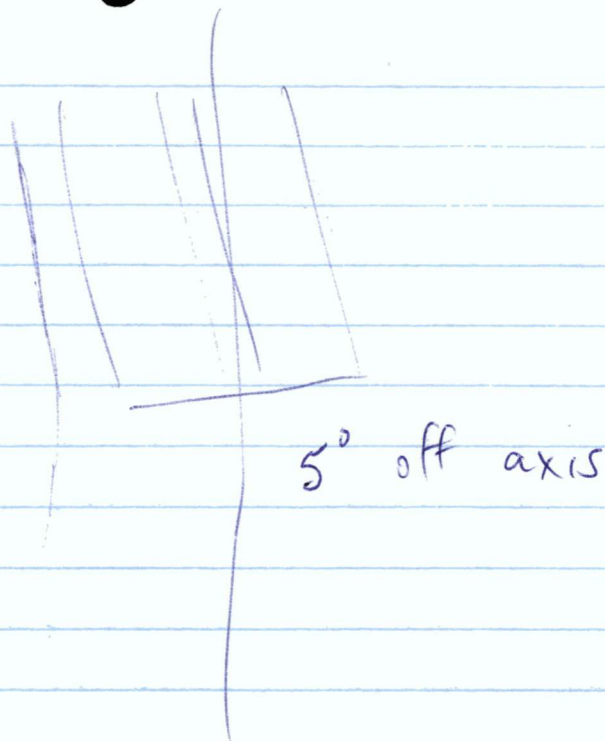




Strap over hole close to basket.

$\frac{7}{8}$   $\phi$  Pin w/ Heater hose

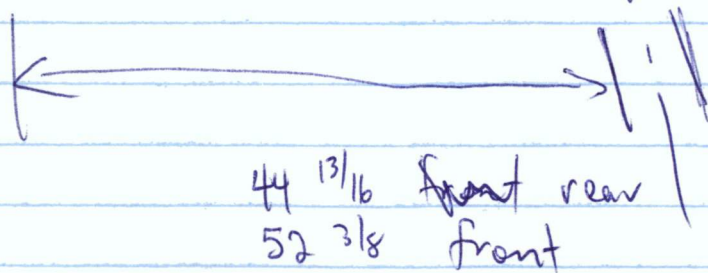




EDGE OF DOOR  
widest point on foreage  
C beam

38  $\frac{3}{8}$  39  $\frac{3}{8}$

$$\begin{array}{r} \rightarrow 38 \frac{1}{8} F \\ 33.25 R \\ \hline 4.875 \rightarrow 4.75 \\ \checkmark \end{array}$$



+ 1/4" for centre

on Centre line of beam

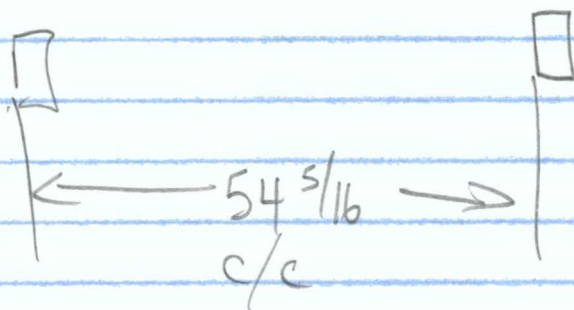
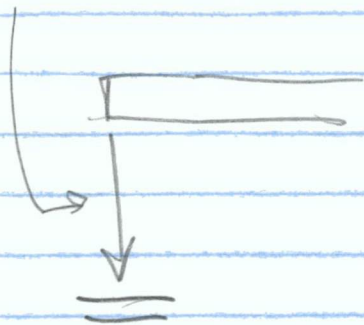


16 <sup>5</sup>/<sub>8</sub>

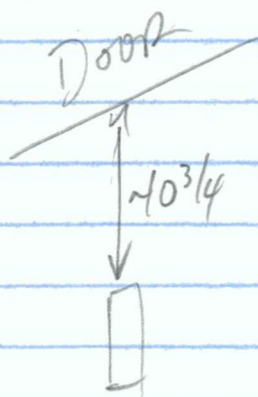
18 w/ bear paw

~1 <sup>1</sup>/<sub>8</sub>

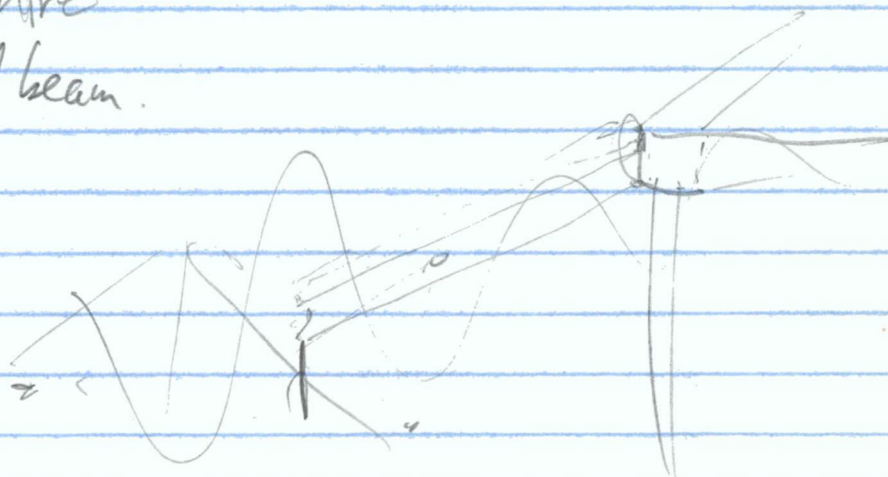
Ok. w/ bear paw



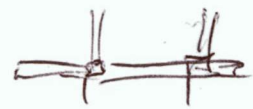
[ Aff beam ~ <sup>1</sup>/<sub>8</sub> right  
Fwd beam ~ <sup>1</sup>/<sub>8</sub> left.



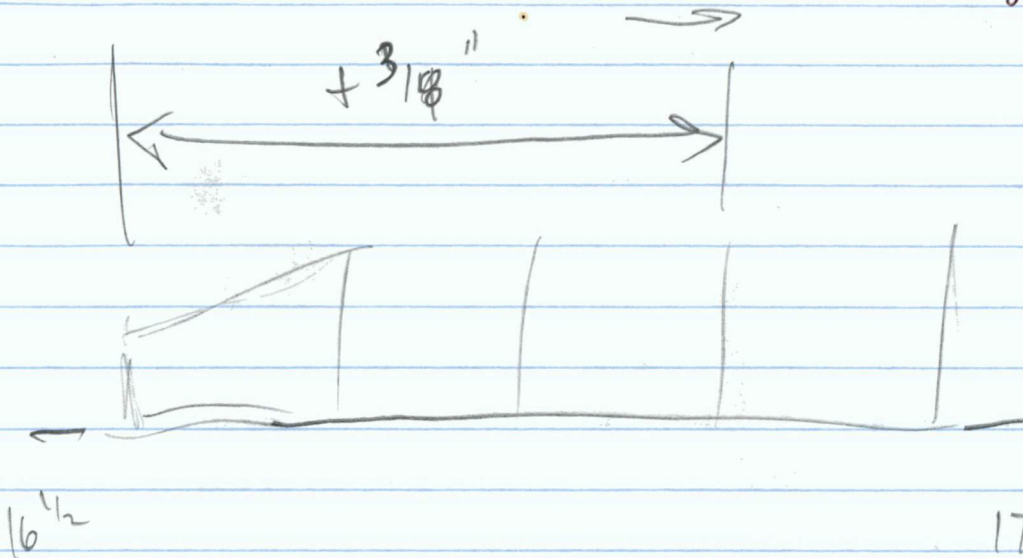
Centre  
Fwd beam.





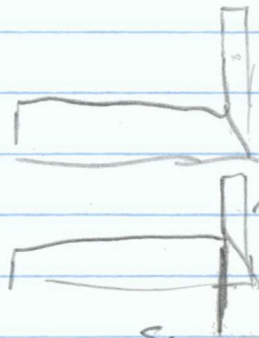


54 <sup>5</sup>/<sub>8</sub> measured in  
3 different helicopters



FWD BEAM

AFT beam



Same

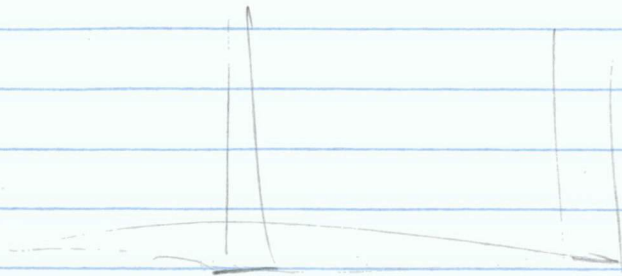
1" tube

4  
ch

no main / Tail rotor  
don't know effect  
of spread.

54 <sup>1</sup>/<sub>2</sub>

54 <sup>5</sup>/<sub>16</sub>

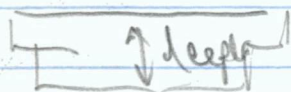
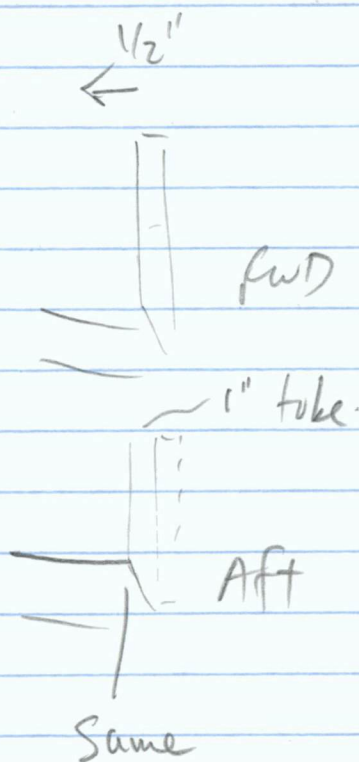


Must be on fwd side



angle

height w/ no tail from  
bottom of hoop  
17" fwd  
18" aft



Correct beam length  
Fwd ~ 41 1/4 w/ cap  
Aft ~ 33 13/16 w/ cap

**AERO DESIGN LTD.**

2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027

Fax: 403-250-8333

www.aerodesign.ca

31 August 2010

Transport Canada  
Aircraft Certification Division  
11<sup>th</sup> Floor, Canada Place  
9700 Jasper Avenue  
Edmonton, Alberta  
T5J 4E6

FAKED  
9:25 AM

Attn: Jack Staal

Your File : C-10-0741

Our File : 906

Re: Robinson R44 Cargo Basket Installation

Jack,

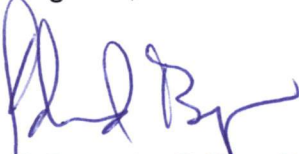
Please find attached the following documents related to this project:

Modification Approval Request Application Form  
Compliance Program  
Project Summary

MOD906  
CP906  
PS906

Rev. 0  
Rev. 0  
Rev. 0

Regards,



E. Burgoin, P.Eng, DAR 290M

Encl.

APPLICANT: AERO Design Ltd.  
2013 - 39th Ave N.E.  
Calgary, Alberta  
T2E 6R7

DATE: 05 August 2010  
REVISION No. 0

CP906

CORRESPONDANCE TO:  
(If other than applicant)

MAKE: Robinson  
MODEL: R44, R44 II

REGISTRATION: All Eligible  
SERIAL No.: All Eligible

NATURE OF WORK: Quick Release Mounting Provisions Installation; Quick Release Cargo Basket Installation

TYPE CERTIFICATE DATA SHEET: H-97

MODEL CERTIFICATION BASIS: FAR 27 dated 1 February 1965, including amendments 27-1 thru 24-24

MODIFICATION CERTIFICATION BASIS: FAR 27 dated 1 February 1965, including amendments 27-1 thru 24-24

Airworthiness Requirement	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
<b>Subpart B</b>	<b>Flight</b>				
27.29	Empty Weight and Corresponding C of G	Data specified on inst'n drawing		X	
27.51	Takeoff	Flight Test	X		
27.65	Climb: All Engines Operating	Flight Test	X		
27.71	Gliding Performance	Flight Test	X		
27.75	Landing	Flight Test	X		
27.141	Flight Characteristics – General	Flight Test	X		
27.143	Controllability and Maneuverability	Flight Test	X		
27.151	Flight controls	Flight Test	X		
27.161	Trim Control	Flight Test	X		
27.171	Stability – General	Flight Test	X		
27.173	Longitudinal Stability	Flight Test	X		
27.175	Demonstration of Longitudinal Stability	Flight Test	X		
27.177	Static Directional Stability	Flight Test	X		
27.241	Ground Resonance	Flight Test	X		
27.251	Vibration	Flight Test	X		
<b>Subpart C</b>	<b>Strength Requirements</b>				
27.301	Loads – Air Drag Loads	Analysis		X	
27.301	Loads – Inertia Loads	Compliance with 27.337 and 27.561		X	
27.303	Factor of Safety	Analysis		X	
27.305	Strength and Deformation	Analysis and Test iaw AC 43.13-1B		X	
27.307	Proof of Structure	Analysis and Test iaw AC 43.13-1B		X	



Airworthiness Requirement	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
27.337	Limit Maneuvering Load Factor	Analysis and Test iaw AC 43.13-1B		X	Critical load factor in downward direction, up load condition applied to security of lid and latching mechanism.
27.547	Main Rotor Structure	Flight Test	X		Mast bending consideration.
27.561	Emergency Landing Conditions	N/A			Cargo basket and cargo are external to cabin, forward deflection or failure of basket poses no threat to occupants
<b>Subpart D</b>	<b>Design and Construction</b>				
27.601	Design	Drawings		X	Design is conventional.
27.603	Materials	Drawings		X	Materials used are specified in Mil-Hdbk-5H.
27.605	Fabrication Methods	Drawings		X	Design is conventional.
27.609	Protection of Structure	Drawings		X	
27.611	Inspection Provisions	Drawings		X	Design is easy to inspect.
27.613	Material Strength Properties and Design Values	Values used as per Mil-Hdbk-5H		X	
27.625	Fitting Factor	Analysis		X	
27.783	Doors	N/A			Installation does not block doors.
27.787(a)	Cargo and Baggage Compartments	Compliance with 23.301 through 307		X	
27.787(b)	Cargo and Baggage Compartments	Design		X	Basket is a closed container.
27.787(c), (d)	Cargo and Baggage Compartments	N/A			Cargo is external to helicopter.
27.807	Emergency Exits	N/A			Installation does not block doors.
27.865	External Load Attaching Means	N/A			Cargo basket is classified as a cargo compartment.
27.1387	Position Light System Dihedral Angles	N/A			No change from Type Approval.
27.1401	Anticollision Light System	N/A			No change from Type Approval.
<b>Subpart G</b>	<b>Operating Limitations and Information</b>				
27.1505	Never Exceed Speed	Flight Test, Flight Manual Supplement	X		V <sub>NE</sub> limits as specified in the existing Flight Manual (155 kts.)
27.1525	Kinds of Operation	Flight Manual Supplement	X		Limited to VFR only.
27.1529	Instructions for Continuing Airworthiness	ICA Provided	X		
27.1557(a)	Miscellaneous Markings and Placards – Baggage Compartments	Placard		X	
27.1557(b)	Miscellaneous Markings and Placards	N/A			
27.1557(c)	Miscellaneous Markings and Placards	N/A			
27.1557(d)	Miscellaneous Markings and Placards	N/A			

Airworthiness Requirement	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
27.1581	Rotorcraft Flight Manual – General	Flight Manual Supplement	X		
27.1581(e)	Rotorcraft Flight Manual – General - Units	Flight Manual Supplement	X		SI and imperial units included
27.1583(c)	Operating Limitations – Weight and Loading Information	Flight Manual Supplement	X		
27.1585	Operating Procedures	Flight Manual Supplement	X		
27.1587	Performance Information	Flight Manual Supplement	X		
27.1589	Loading Information	Flight Manual Supplement & Placard	X		Placard installed on basket lid
<b>Canadian Airworthiness Manual Chapter 527, change 527-2, dated 1 February 1992</b>					
527.1301-1	Rotorcraft Operations After Ground Cold Soak	N/A			
527.1557(c)(3)	Miscellaneous Marking and Placards	N/A			Not a fuel tank
527.1583(h)	Operating Limitations – Ambient Temperature	N/A			No change from Type Approval

**Title:** Quick Release Cargo Basket Installation  
**Approval:** STC  
**Manufacture:** Mfd by Aero Design (amend Approved Product List)  
**Customer:**  
**Type and Model:** Robinson R44, R44 II

**Definition Of Change:****Description:**

Installation of quick release mounting provisions on the landing gear cross tubes. The provisions consist of a pair of stainless steel mounting beams attached with aluminum clamps to the cross tube forgings. The configuration is similar in construction to the Eurocopter AS350 Cargo Basket configuration.

Installation of a cargo basket on the mounting provisions. The cargo basket uses the same construction and attachment means as other approved AERO Design Ltd. baskets.

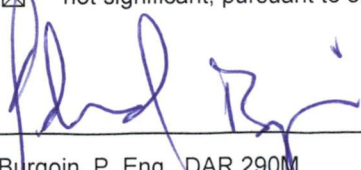
Note that the Robinson R44 qualifies as an excepted product to Changed Product Rule in accordance with AC 500-16, section 7. To allow for future extension of this installation to the similar Robinson R66 (once certified), which is turbine powered, a CPR decision record is provided.

**Primary Changes to the Aeronautical Product:**

Installation of quick release mounting provisions on the landing gear cross tubes; installation of cargo basket on mounting provisions.

**Secondary Changes to the Aeronautical Product (Required as consequence of primary changes):****Other Relevant Modifications to the Aeronautical Product (Which impact on this change):**




CHANGED PRODUCT RULE (CPR) DECISION RECORD	
NAPA No.: <u>C-10-0741</u>	
<b>Step 1:</b> Identify the proposed change to the aeronautical product. (Section 4.1 of AC 500-016)	The changes are as previously described.
<b>Step 2:</b> Is the change substantial? (Section 4.2 of AC 500-016)	<input type="checkbox"/> Yes A new type certificate is required. CPR Decision Process is <b>Closed</b> . <input checked="" type="checkbox"/> No Proceed to Step 3
<b>Step 3:</b> Will the latest standards be used? (Section 4.3 of AC 500-016)	<input type="checkbox"/> Yes Certification basis to use latest standards. CPR Decision Process is <b>Closed</b> . <input checked="" type="checkbox"/> No Proceed to Step 4.
<b>Step 4:</b> Is the proposed change significant? (Section 4.4 of AC 500-016)	<input type="checkbox"/> Yes Proceed to Decision. <input checked="" type="checkbox"/> No Compliance may be shown to earlier standards. Certification basis to be defined and documented as indicated (below). CPR Decision Process is <b>Closed</b> .
<b>Decision:</b> Will the latest standards be used?	<input type="checkbox"/> Yes Certification basis to use latest standards. CPR Decision Process is <b>Closed</b> . <input checked="" type="checkbox"/> No Proceed to Step 5, addressing each area separately (see below).
<b>Identification of Affected Areas:</b>	The area(s) affected by the proposed change have been detailed in Compliance Program: CP906
<b>Note:</b> A delegate may develop a proposal for the Yes/No decision of Step 6, however, TCCA will make the final determination.	
<b>Area:</b>	
<b>Step 5:</b> Is this area affected by the proposed change? (Section 6.1 of AC 500-016)	<input type="checkbox"/> Yes Proceed to Step 6. <input checked="" type="checkbox"/> No Compliance with the latest standards is not required. Compliance may be shown to earlier standards. Certification basis defined or documented as indicated below.
<b>Step 6:</b> Are the latest standards practical and do they contribute materially to the level of safety? (Section 6.2 of AC 500-016)	<input type="checkbox"/> Yes Certification basis to be established using latest standards. <input checked="" type="checkbox"/> No Compliance with the latest standards is not required. Compliance may be shown to earlier standards. Certification Basis defined or documented as indicated in below.
<input type="checkbox"/> Continuation Sheet(s) Attached <b>Note:</b> Several standards may apply to each area and the assessment may differ from standard to standard. Indicate Yes if compliance with any latest standard(s) will be required. Indicate No only if no later standards are to be applied.	
<b>Certification Basis</b>	The certification basis is as follows or as detailed in the listed document(s): Robinson R44, R44II; TCDS H-97 (H11NM): FAR 27, dated 1 February 1965, including amendments 27-1 thru 27-24. Exemption to 27.955(a)(7), 27.1305(q), 27.695.
Under the delegated authority, I have examined the change in type design listed above according to established procedures and hereby determine, to the best of my knowledge and belief, that it is. (check one)	
<input type="checkbox"/> substantial, pursuant to subsection 511.14 or 513.14 of the CARs <input type="checkbox"/> significant, pursuant to subsection 511.13(3) or 513.07(3) of the CARs <input checked="" type="checkbox"/> not significant, pursuant to subsection 511.13(3) or 513.07(3) of the CARs	
 E. Burgoin, P. Eng., DAR 290M	
Date <u>30 August 2010</u>	

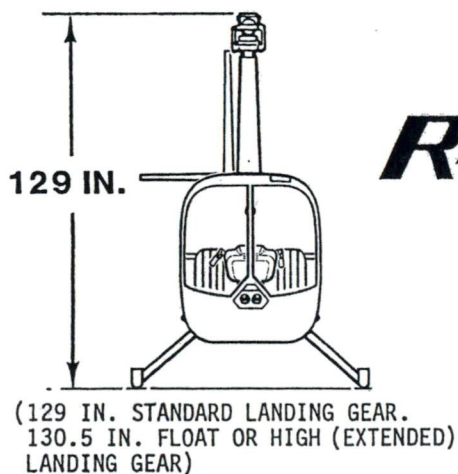
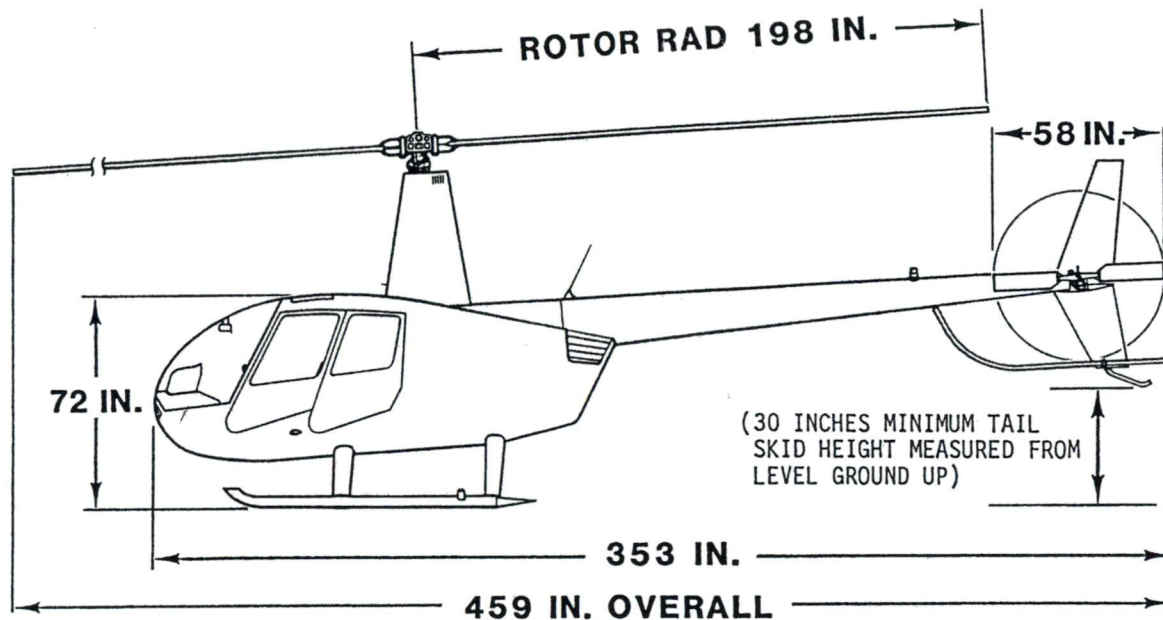
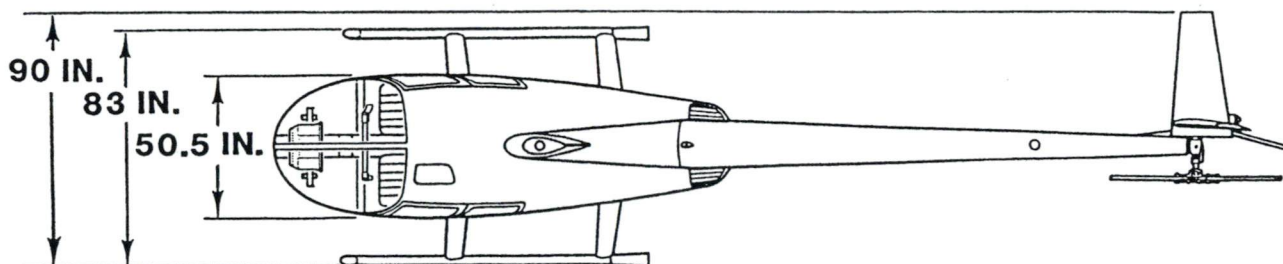


MODIFICATION APPROVAL REQUEST APPLICATION FORM

MOD906, Rev. 0

1. NAME AND ADDRESS OF APPLICANT:		2. IDENTIFICATION OF PRODUCT				
AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		MAKE:  Robinson	MODEL:  R44, R44 II			
ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		SERIAL No.:  All eligible	REGISTRATION:  All Eligible			
3. REQUEST FOR:						
A. SUPPLEMENTAL TYPE CERTIFICATE (STC)		<input checked="" type="checkbox"/>	C-10-0741			
B. STC/STA REVISION		<input type="checkbox"/>			STC/STA No.	
C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)		<input type="checkbox"/>				
D. LIMITED STC/STA REVISION		<input type="checkbox"/>			LSTC/LSTA No.	
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE		<input type="checkbox"/>				
F. F.A.A. STC REVISION		<input type="checkbox"/>			STC No.	
G. FAMILIARIZATION OF F.A.A. STC		<input type="checkbox"/>			STC No.	
H. REPAIR DESIGN APPROVAL (RDC)		<input type="checkbox"/>				
I. PARTS DESIGN APPROVAL (PDA)		<input type="checkbox"/>				
4. TITLE OF MODIFICATION OR REPAIR: Quick Release Mounting Provisions Installation; Quick Release Cargo Basket Installation						
5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR: Installation of provision on the helicopter to allow equipment such as cargo baskets to be quickly installed or removed without using tools. Installation of a cargo basket on the mounting provisions.						
6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:						
A. TA NO. H-97                      B. TC No.                      C. OTHER						
7. PROPOSED BASIS OF APPROVAL:						
A. SAME AS TA <input checked="" type="checkbox"/> B. SAME AS TC <input type="checkbox"/> C. OTHER <input type="checkbox"/> (Please specify)						
8. DOCUMENTATION CHECKLIST		REQUIRED		FOR DOT USE ONLY		
		YES	NO	RECEIVED		
		YES	NO	YES	NO	DATE
COMPLIANCE PROGRAM		X				
MASTER DRAWING LIST		X				
FLIGHT MANUAL SUPPLEMENT		X				
MAINTENANCE MANUAL SUPPLEMENT			X			
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS		X				
ENGINEERING REPORTS		X				
DESIGN DRAWINGS			X			
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS		X				
ELECTRICAL LOAD ANALYSIS			X			
DRAFT STC, LSTC OR RDA		X				
WEIGHT AND MOMENT CHANGE		X				
FLIGHT TEST DATA		X				
OTHER (Specify)						
9. APPLICANT'S REMARKS:						
10. In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4.						
PER: 		Consultant			31 August, 2010	
SIGNATURE OF APPLICANTS		TITLE			DATE	
11.						
SIGNATURE OF REGIONAL ENGINEER					DATE	

**1.006 EXTERNAL DIMENSIONS**



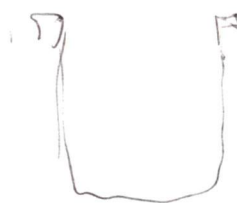
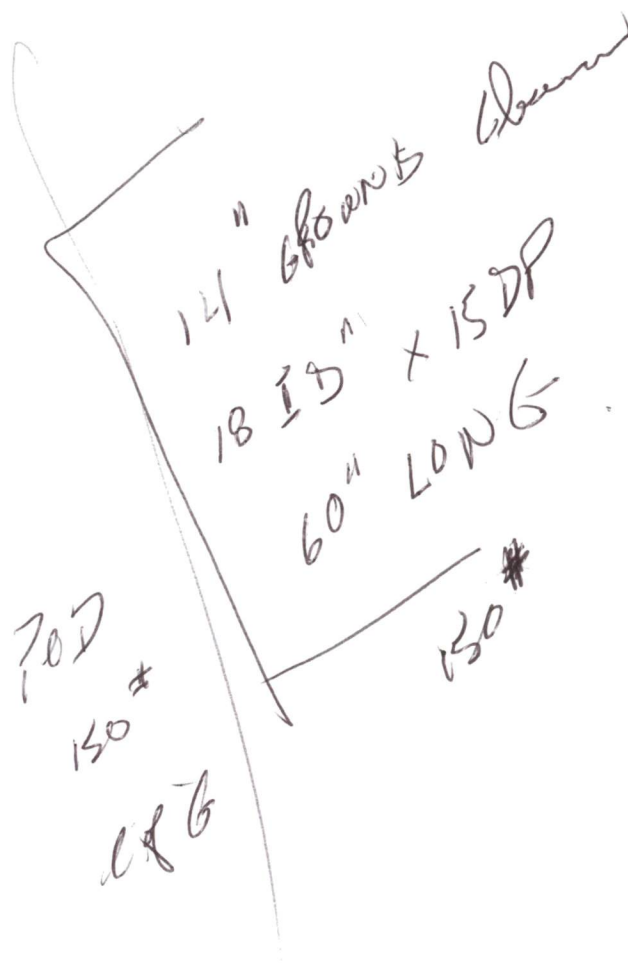
***R44 & R44 II*** |

**EXTERNAL DIMENSIONS**

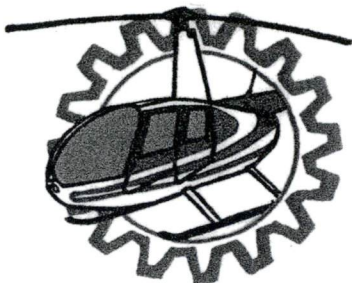


0  
1 84 142 0

POD  
14" ASL OF GEAR







# Northwest Helicopter Services Inc

Box 456  
Whitecourt, Alberta  
T7S 1N6  
780-778-1257

## Weight & Balance

Company: Rotor Works  
A/C Reg: C-GPVL  
Serial #: 12380

Date: 8-Aug-08

From Amendment # 3

Configuration 0  
Original Weigh

Longitudinal			Lateral	
Weight	Arm	Moment	Arm	Moment
1527.40	107.37	163996.12	0.16	250.85

Configuration 1  
Dual Controls

Longitudinal			Lateral	
Weight	Arm	Moment	Arm	Moment
2.10	47.42	99.58	0.00	0.00
1529.50	107.29	164095.70	0.16	250.85

Configuration 2  
Dual Controls  
Baffle Kit

Longitudinal			Lateral	
Weight	Arm	Moment	Arm	Moment
2.10	47.42	99.58	0.00	0.00
0.86	160.00	137.60	0.00	0.00
1530.36	107.32	164233.30	0.16	250.85

Configuration 3  
Baffle Kit

Longitudinal			Lateral	
Weight	Arm	Moment	Arm	Moment
0.86	160.00	137.60	0.00	0.00
				0.00
1528.26	107.40	164133.72	0.16	250.85

Configuration 4

Longitudinal			Lateral	
Weight	Arm	Moment	Arm	Moment

The Maintenance described above has been accomplished in accordance with the applicable standards of airworthiness

AME Signature: [Signature]

ACA/Lic # Amo 71-06  
m403061



SECTION 6

WEIGHT AND BALANCE

GENERAL

The helicopter must be flown only within the weight and balance limits specified in Section 2. Loadings outside these limits can result in insufficient control travel for safe control. Refer to LOADING INSTRUCTIONS to ensure loading within safe limits.

**CAUTION**

Fuel is located aft of helicopter CG, causing CG to move forward during flight. Always determine safe loading with empty fuel as well as with takeoff fuel. Amount of fuel which can be off-loaded to allow for a greater payload is limited by forward CG location with empty fuel.

WEIGHT AND BALANCE RECORD

An equipment list giving helicopter configuration, empty weight, and center of gravity is provided with each helicopter. This data applies to the helicopter as delivered from the factory. Any changes in helicopter configuration should be documented using the form on page 6-2.

**CAUTION**

Following any modification which moves empty CG aft, calculate weight and balance with 150 lb pilot and full fuel. If calculation shows CG aft of aft limit, fixed ballast must be installed in nose to comply with minimum solo pilot weight limitation in Section 2.

(Continuous History of Changes in Structure or Equipment Affecting Weight and Balance)

[illegible]

## SECTION 6 WEIGHT AND BALANCE

6-2

The following table may be used when determining loaded helicopter weight and CG position.

Item	Weight (lb)	Longitudinal CG, inches	Lat CG, inches (+ = right side)
Pilot (right forward seat)		49.5*	+ 12.2
Left forward passenger		49.5*	-10.4
Baggage under forward seats		44.0	± 11.5
Aft passengers and baggage under aft seats		79.5	± 12.2
Main fuel		106.0	-13.5
Aux fuel		102.0	+ 13.0
Forward doors	7.5 each	49.4	± 24.0
Aft doors	7.0 each	75.4	± 23.0
Removable cyclic	0.6	35.8	- 8.0
Removable collective	0.8	47.0	-21.0
Removable pedals (both pedals)	0.8	16.8	- 9.5

\*If backrest cushion is used, subtract thickness of compressed cushion.

**LOADING INSTRUCTIONS (cont'd)**

The following sample calculation demonstrates how to determine loaded helicopter weight and longitudinal center of gravity. These may be compared with the CG limits given in Section 2 to determine safe loading. Alternately, total moments may be compared with the allowable moment chart on page 6-6. Both takeoff and empty fuel conditions must be within limits.

It is usually not necessary to determine lateral CG position as most optional equipment is located near centerline. If an unusual installation or loading occurs, lateral CG should be checked against the CG limits given in Section 2. The lateral CG datum is the aircraft centerline with items to the right positive and items to the left negative.



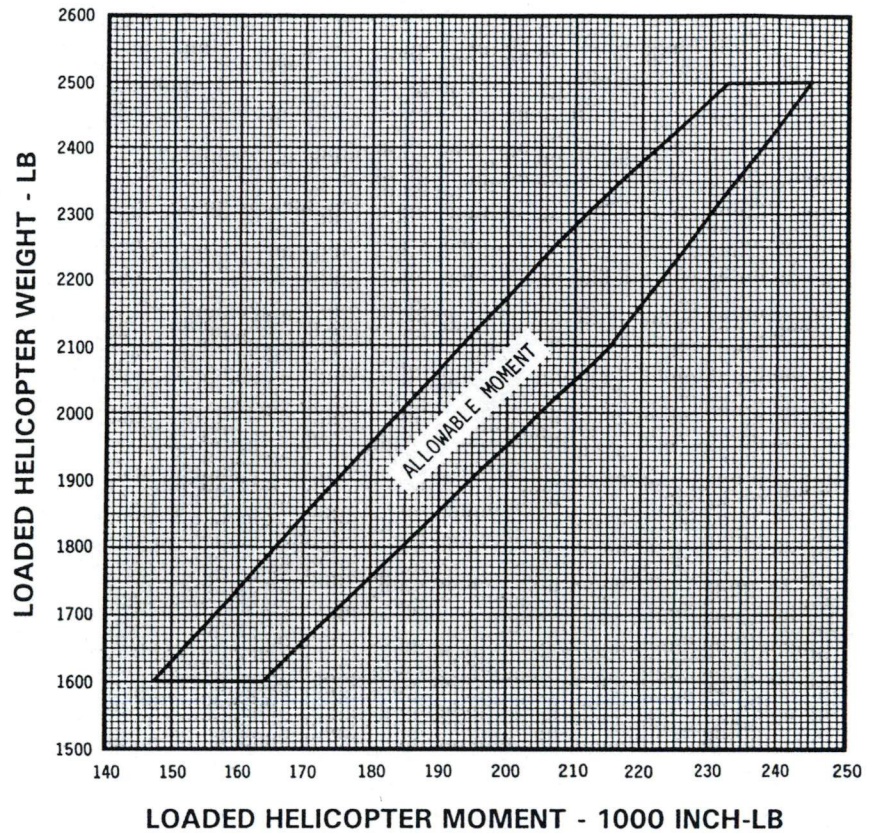
LOADING INSTRUCTIONS (cont'd)

SAMPLE LOADING CALCULATION

Item	Arm (Inches from Datum)	Sample Helicopter		Your Helicopter	
		Weight (lb)	Moment (in-lb)	Weight (lb)	Moment (in-lb)
Basic empty weight as equipped (Includes unusable fuel and full oil)		1510	160,815		
Pilot door removed	49.4	-7.5	-371		
Pilot and forward passenger	49.5	340	16,830		
Forward baggage	44.0	20	880		
Aft passengers and baggage	79.5	336	26,712		
Total weight and balance with zero usable fuel	93.2	2198.5	204,866		
Usable main tank fuel at 6 lbs/gal.	106.0	184	19,504		
Usable aux tank fuel at 6 lbs/gal.	102.0	110	11,220		
Total weight and balance with take- off fuel	94.5	2492.5	235,590		

Note: CG location (arm) aft of datum for loaded helicopter is determined by dividing total moment by total weight.

LOADING INSTRUCTIONS (cont'd)



R44 II

ALLOWABLE LOADED MOMENT VS. GROSS WEIGHT  
ENVELOPE

Madonna Helicopters LTD  
Weight and Balance Amendment

Aircraft: R44 II      Reg'n: C-GPVL      Serial #: 12380

Amendment No: 4

**Purpose: To Install Equipment & Revise Configurations**

From amendment # 2- 08 AUG 2008

Empty Weight Configuration	Weight	Horizontal	
		Arm	Moment
<b>As Weighed</b>	<b>1524.90</b>	<b>107.44</b>	<b>163831.12</b>
<b>REMOVE:</b>			
NAT AA83-100 Audio Control	-0.70	25.70	-17.99
VHF FM Antenna CI-292-3	-0.50	84.00	-42.00
Removable Cyclic	-0.60	35.80	-21.48
Removable Collective	-0.80	47.00	-37.60
Removable Pedals (Both)	-0.80	16.80	195.00
<b>ADD:</b>			
NAT AMS42 Audio Control	2.30	25.00	57.50
VHF FM Antenna CI-177-1	0.70	200.20	140.14
Spidertracks Tracking System	0.70	15.00	10.50
Ample Pod Assy. R/H (fixed Prov.)	0.30	96.75	29.03
Ample Pod Assy. R/H	45.00	104.50	4702.50
Helitowcart Bearpaw Kit SH06-24	5.90	128.50	758.15
Tanis Heater Kit TAS100S-07	2.40	110.00	264.00
Dart Cargo Mirror SH04-17	1.30	32.00	41.60
<b>Empty Weight</b>	<b>1580.10</b>	<b>107.53</b>	<b>169910.47</b>

Lateral	
Arm	Moment
<b>0.12</b>	<b>180.85</b>
0.00	0.00
-13.50	6.75
-8.00	4.80
-21.00	16.80
-9.50	7.60
0.00	0.00
0.00	0.00
12.20	8.54
29.47	8.84
31.50	1417.50
0.00	0.00
0.00	0.00
41.70	54.20
<b>1.08</b>	<b>1705.88</b>

The described maintenance has been performed in accordance with the applicable Airworthiness requirements.

28-Apr-10

Date

Signature and Licence Number





## Jeff Clarke

---

**From:** Jeff Clarke [jeff@aerodesign.ca]  
**Sent:** August 3, 2010 12:37 PM  
**To:** 'capitalheli@polarcom.com'  
**Subject:** AERO Design Robinson R44 Cargo Basket  
Delmar,

Please find attached some sketches for an R44 Cargo Basket. I have drawn the baskets on the left, but either side could be accommodated. Right side basket with pilot only will have limited load capacity. We may limit payload to 150 lbs (same as the pods) just to ensure lateral limits are not likely to be exceeded.

### Option 1

- Our "standard" profile, used on the Bell 206L/407/205/212
- Length to fit between the cross tubes (final length to be determined)
- Would fit right and left with same basket

### Option 2

- Same height as Option 1, but with corner cut off to allow basket to extend past the gear
- Length is the same as our 206L/407 basket to simplify production
- Would be "sided" (right or left) due to aft end sticking out

### Option 3

- Same as Option 2, but height is increased by 2" to allow full use of the 4' wide sheet of mesh
- Front end would be closed in, or have a split lid to clear under the rear door
- Would be "sided" (right or left) due to aft end sticking out

With the high mounting position and sloped front end in option 3, it may be possible that the profile from option 1 would work as well, giving a bit more volume and larger flat area on the bottom.

Also attached are a couple of sample weight and balance calculations. I have played with the weights and passenger positions and it seems like we can stay within limits in most configurations. Light pilot/no passengers may be an issue for full cargo.

I have attached the brochures for the Simplex (New Zealand) and HeliTowCart (Quebec) pods for comparison.

Please take a look and let me know what you think.

Regards,

Jeff Clarke, CET

AERO Design Ltd.  
2013 39th Avenue NE  
Calgary, Alberta, Canada  
T2E 6R7

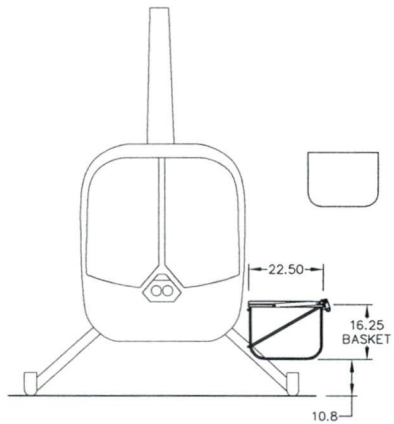
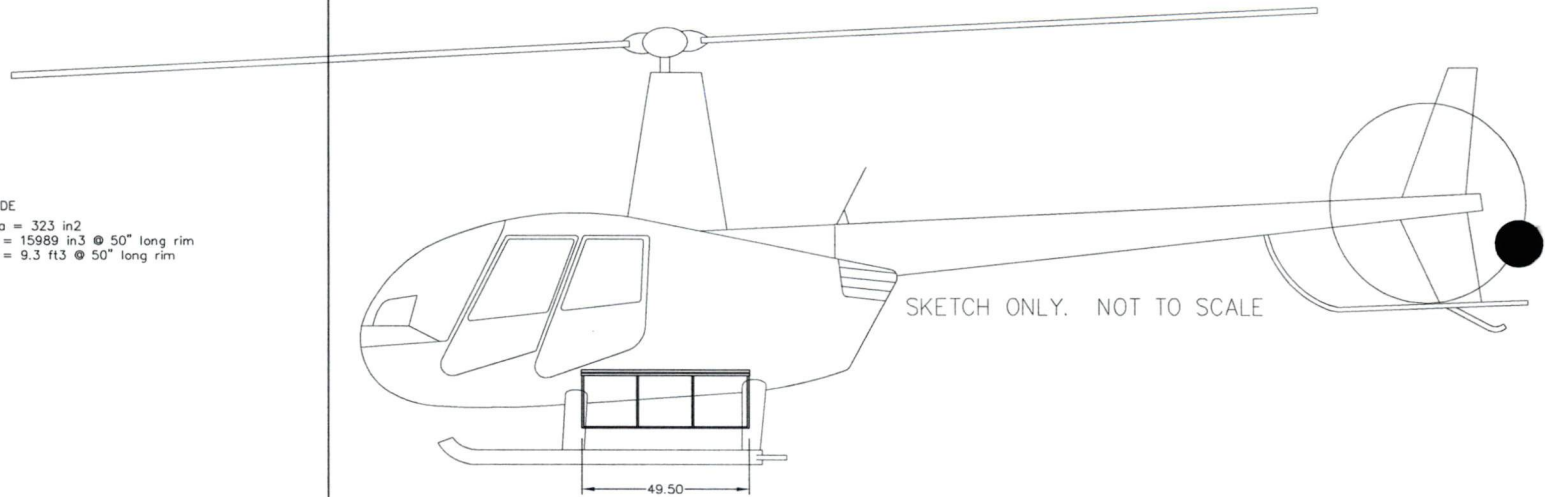
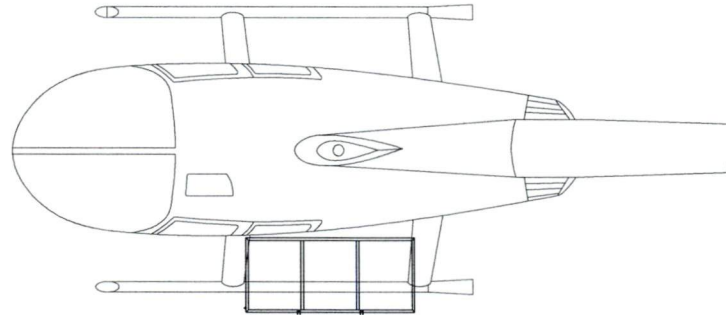
Phone: 403.250.8027  
Fax: 403.250.8333

04/08/2010



# Option 1

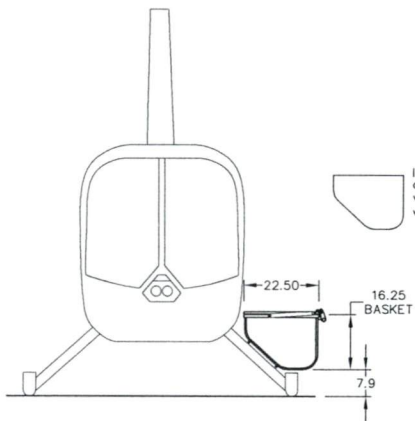
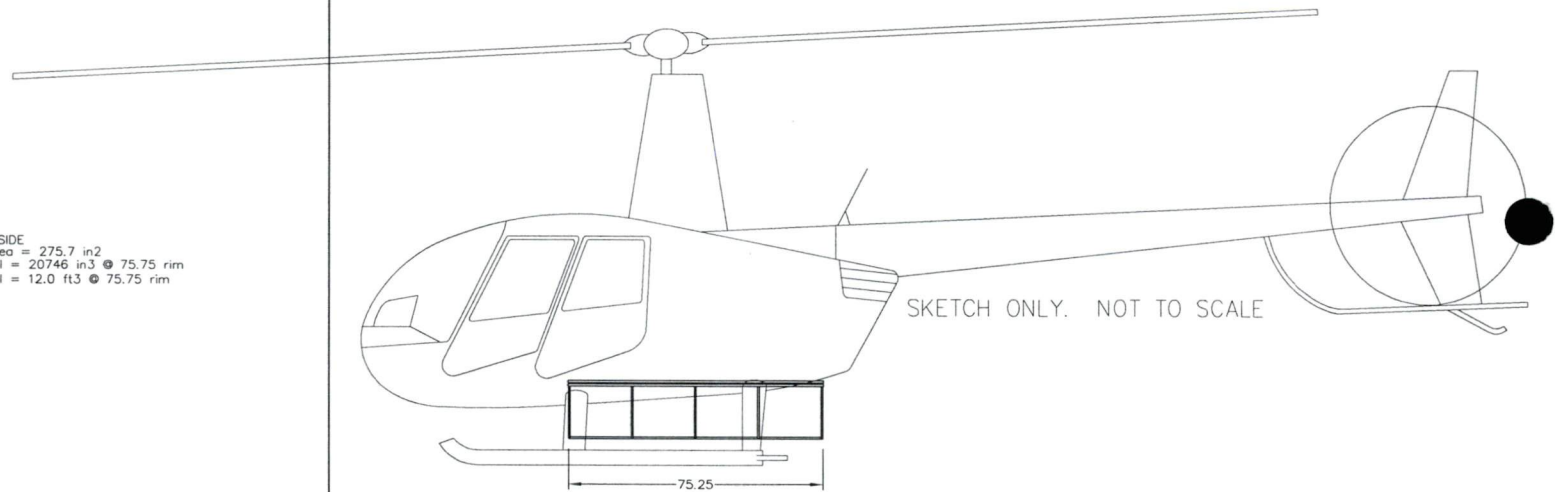
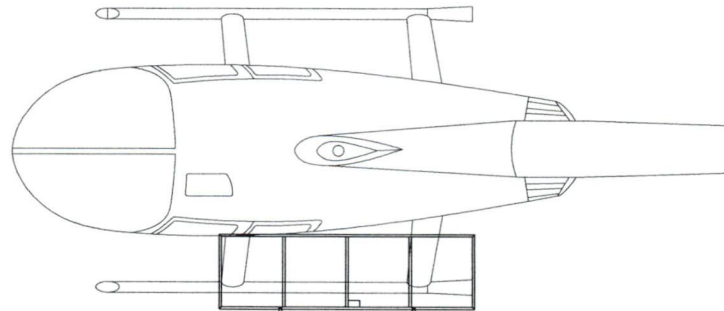
FS  
0.0



INSIDE  
area = 323 in<sup>2</sup>  
vol = 15989 in<sup>3</sup> @ 50" long rim  
vol = 9.3 ft<sup>3</sup> @ 50" long rim

Option 2

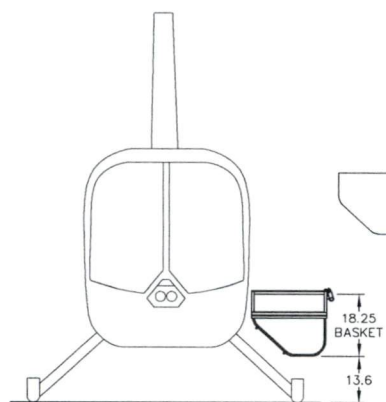
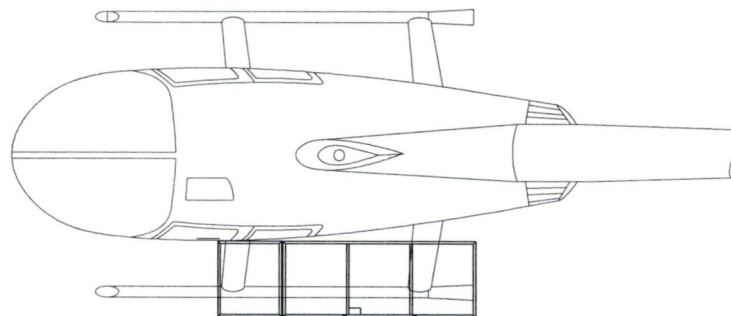
FS  
0.0



INSIDE  
area = 275.7 in<sup>2</sup>  
vol = 20746 in<sup>3</sup> @ 75.75 rim  
vol = 12.0 ft<sup>3</sup> @ 75.75 rim

Option 3

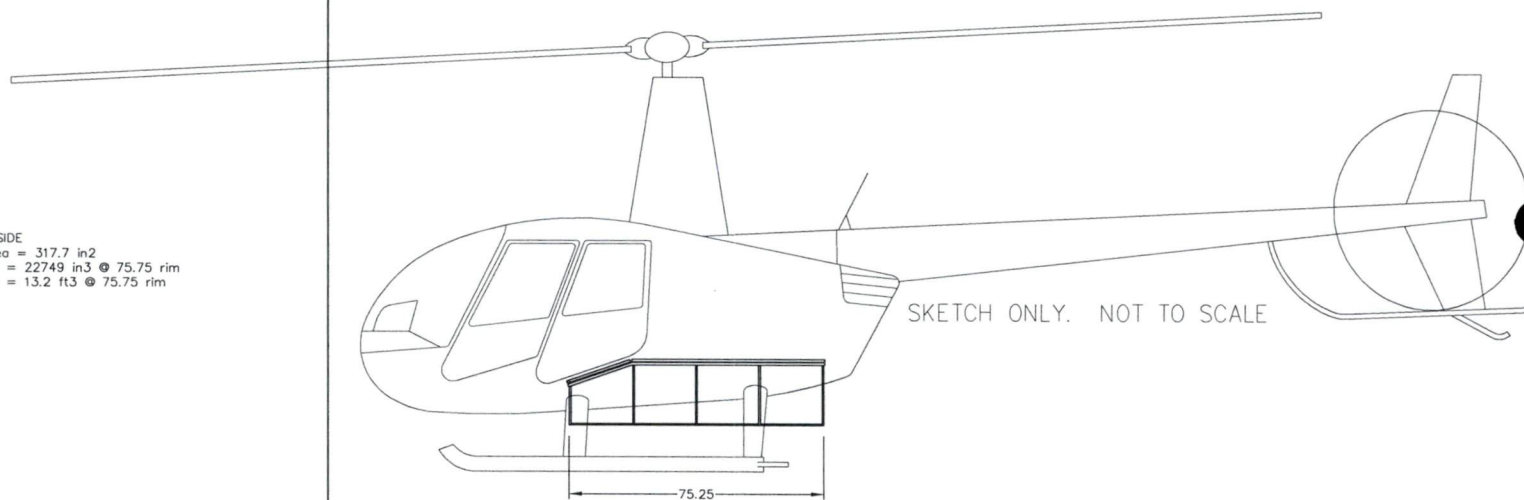
FS  
0.0



INSIDE  
area = 317.7 in<sup>2</sup>  
vol = 22749 in<sup>3</sup> @ 75.75 rim  
vol = 13.2 ft<sup>3</sup> @ 75.75 rim



18.25  
BASKET  
13.6



SKETCH ONLY. NOT TO SCALE



# Simplex Helipods



## R44 VII SKI POD

Maximize your R44 with CAA approved Helipod luggage systems. Helipods utilize proven light weight technology and are designed to optimize your R44. Adding storage capacity increases operational versatility and enhances cabin safety. Why take on added risk when Helipods from Simplex are lightweight, offer quick installation, and are suited to your storage needs.

- CAA STC # 6.21E.4
- RAPID INSTALLATION
- WEATHERPROOF
- LIGHTWEIGHT
- INCREASED CABIN SAFETY
- ENHANCED CABIN COMFORT
- ABLE TO CARRY SKI'S, SNOW BOARDS & FISHING RODS
- DOOR DESIGNED TO STAY OPEN ONCE RAISED BY THE PILOT



Left Hand:  
444-000000-241

Right Hand:  
444-000000-242



### SPECIFICATIONS\*

Empty weight:	36.7 lb.	16.7 kg
Capacity:	11.5 ft <sup>3</sup>	0.34 m <sup>3</sup>
Payload:	150 lb.	68.2 kg
Dimensions:	Length 86.6 in.	220.0 cm
	Height 17.7 in.	45.0 cm
	Width 13.0 in.	33.0 cm

\*Specifications may vary slightly from system to system.

\*CAA (New Zealand) STC

*Cross section 230 in<sup>2</sup> max*



**SIMPLEX** Mfg

Aviation Mission Equipment



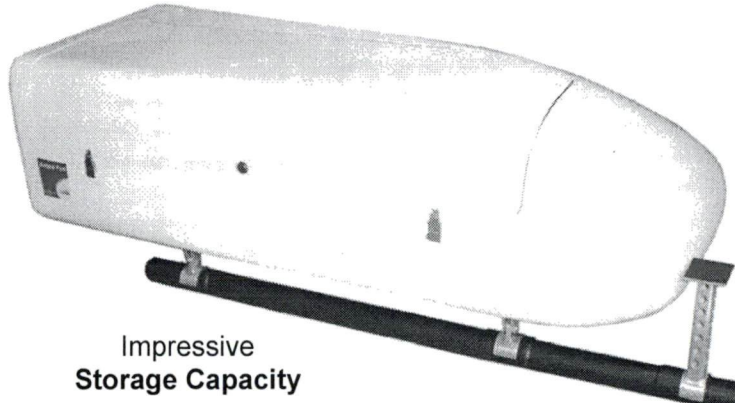
**Innovation \* Quality \* Integrity**

For more information, visit us at [www.simplexmfg.com](http://www.simplexmfg.com)

P: +1.503.257.3511

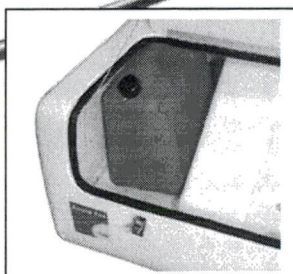
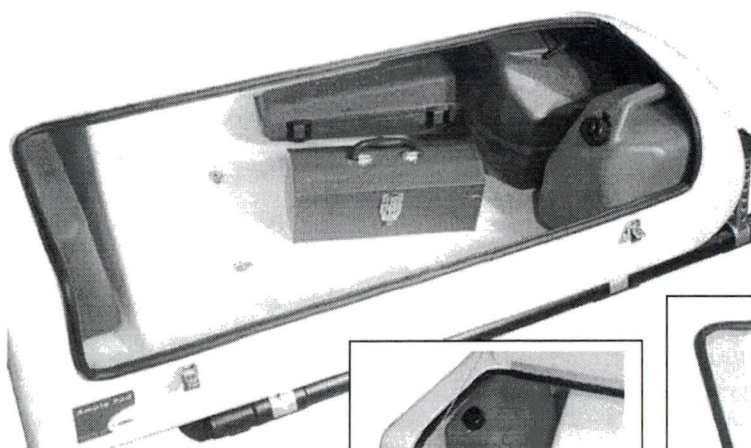
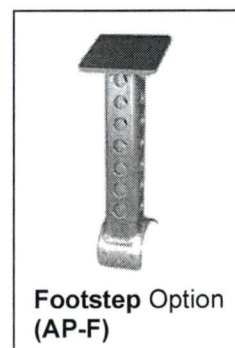
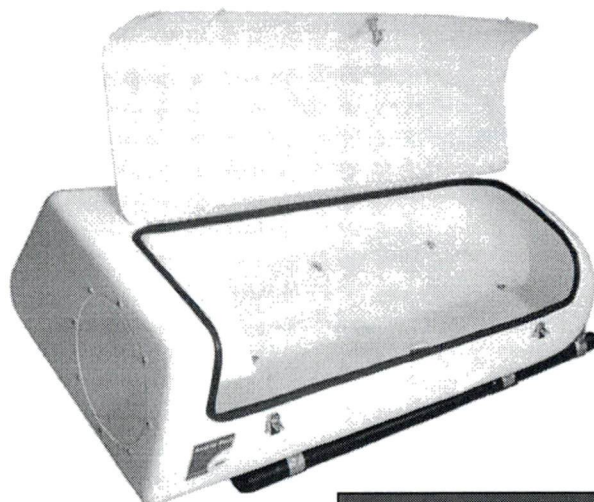
F: +1.503.257.8556



The AMPLE Pod	Specifications
 <p><b>Impressive Storage Capacity</b></p>	<b>Capacity:</b> 112 U.S. Gallons (427 litres)
	<b>Weight:</b> 45lbs (20,5 kg)
	<b>Payload :</b> 150lbs (68.2 kg)
	<b>VNE :</b> 120 kts
	<b>Dimensions:</b> 64.5"x 30"x 17"(122x75x43cm)
	<b>Certification:</b> Transport Canada STC <b>Pending Certification:</b> United States FAA STC
	<b>Models:</b> Right (AP-R), Left (AP-L)

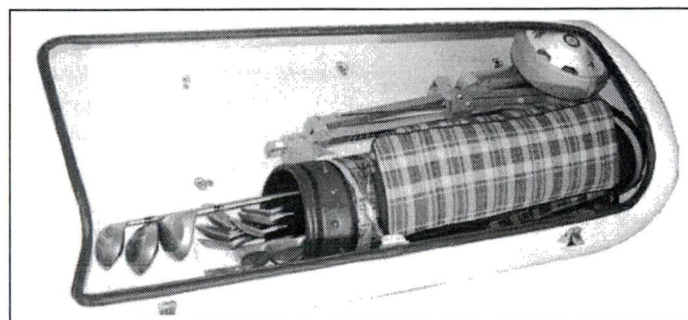


**Handles for easy installation**

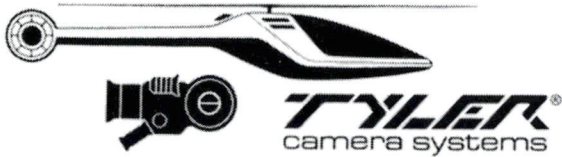


## Advantages:

- 427 litres capacity / 112 U.S. Gallons
- Pivot attachment for free skid movement
- Double handle for easy carrying
- Large door opening







# Side Video Gimbal

## R44 & Raven II

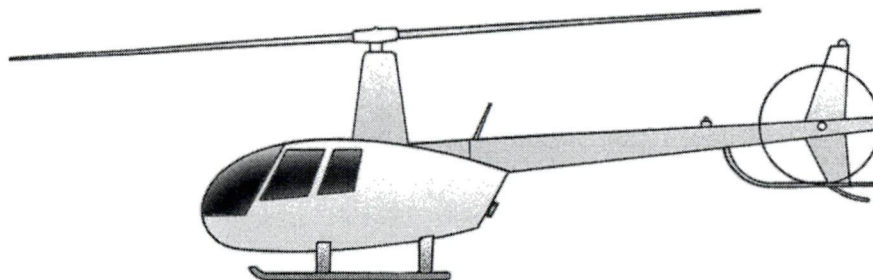
Installation Manual  
Report # R44INST-001

&

Maintenance Manual  
Report # ROB-005



**Tyler - Side Video Gimbal**  
**For Robinson R44 Series Helicopters**  
FAA STC # SR0272LA

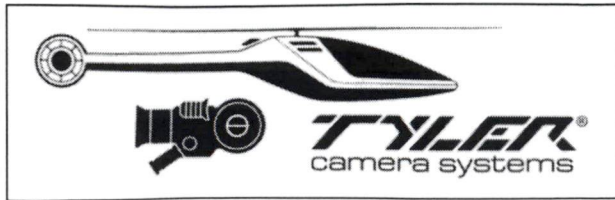


PLEASE return THIS MANUAL with equipment



Tyler Camera Systems 14218 Aetna Street Van Nuys, Ca 91401 • USA  
[www.tylermount.com](http://www.tylermount.com) • (818) 989-4420 • Fax (818) 989-0423





MODEL: Robinson R44

REPORT #: R44 INST-001

JOB #: \_\_\_\_\_

DATE: 8-29-01

**SIDE VIDEO GIMBAL (MODEL SVG-R44)**  
**INSTALLATION MANUAL For**  
**ROBINSON R-44 HELICOPTERS**

PREPARED BY: C. Tyler

# OF PAGES: \_\_\_\_\_

CHECKED BY: N. Tyler

# OF DRAWINGS: \_\_\_\_\_

APPROVED BY: G. Wood



14218 Aetna St.  
Van Nuys, CA. 91401  
Installation Manual Report Number R44INSTALL-001

Robinson Model R-44 & Raven II  
Installation of the  
Tyler ROB-001 Universal Mount

STC Number SR 01272 LA

## TABLE OF CONTENTS

List of Approved Cameras & Acceptance Process.....	4
Assemble Instructions .....	6
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Weight & Balance Sheets .....	17
Appendix A – Procedure to add an unapproved camera/sensor .....	19





14218 Aetna St.  
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Robinson Model R-44 & Raven II  
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### LOG OF PAGES

REV	PAGE NO.	PAGE DATE	DESCRIPTION	FAA APPROVED
Original	Cover 1-22	29 August 2001	Initial Issue	<b>FAA APPROVED</b>  AUG 29  LOS ANGELES AIRCRAFT CERTIFICATION OFFICE INITIALS: ..... C Mathies, ANM-120L
A	21-22	16 March 2007	Changed Weight & Balance to include metric value	<b>FAA APPROVED</b>  MAR 16 2007  LOS ANGELES AIRCRAFT CERTIFICATION OFFICE INITIALS: ..... _____
B	3  4-5  15-20  18-31	28 Nov 2007	Inserted Log of Pages  Added list of approved cameras  Deleted enclosed RFM  Added Test Procedure for unapproved camera/sensor or light  Repaginated	<b>FAA APPROVED</b>  NOV 28 2007  LOS ANGELES AIRCRAFT CERTIFICATION OFFICE INITIALS: ..... _____



14218 Aetna St.  
Van Nuys, CA. 91401  
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Robinson Model R-44 & Raven II  
Installation of the  
Tyler ROB-001 Universal Mount

STC Number SR 01272 LA

## List of Approved Cameras & Acceptance Process

The Tyler SVG-R44 mount was certified with the Ultra media II and a self-contained power supply. The following cameras have been installed and flown on the mount at different times and using ships power.

- Wescam 16ss1000
- Poly Tech Kelvin 350IR
- Poly Tech Kelvin 360 Corona
- CineFlex V14

This STC addresses the Structural, Performance & Handling Qualities requirement for the largest configuration (2 sq ft / 1858.06 sq cm & 120 lb / 54.43 kg). Smaller or lighter cameras/sensors are approved without further flight testing. The specific sensor/cameras/light not listed here is accepted with this follow-on test plan found in Appendix A.

### **For helicopters registered in the U.S. or other countries recognizing FAA certification:**

Once the testing is completed by the Integrator/Operator and the flight test conducted by the Pilot/Operator and the FAA (certified) mechanic the sensor /camera / light payload can be added to the accepted list in this manual. The report contained herein must be completed and signed prior to the "return to service" for any sensor/ camera / light payload.

The flight will be conducted as an "Operational Check Flight". Operational check flights do not require a special airworthiness certificate in the experimental category. The term "operational check flight" (14 CFR § 91.407(b)) includes flight tests performed to check installation and/or operation of an approved STC, amended TC, or any other FAA-approved data after installation and return to service.

Operational check flights are performed under the current airworthiness certificate.

The purpose of this test is to ensure the approved modification and/or alteration functions properly and does not adversely affect aircraft operation.

### **For helicopters registered in an EU-member state:**

The specific sensor/camera/light to be added to the STC has to be introduced by a Minor Change with an EASA accepted certification program.

Once the testing is completed by the Integrator/Operator and the flight test conducted by the Pilot/Operator and EASA Engineer and the Minor Change is approved the



14218 Aetna St.  
Van Nuys, CA. 91401  
Installation Manual Report Number R44INSTALL-001

Robinson Model R-44 & Raven II  
Installation of the  
Tyler ROB-001 Universal Mount

STC Number SR 01272 LA

sensor/camera/light, can be added to the accepted list in this manual. The report contained herein must be completed and signed prior to the "return to service" for sensor/camera/light.

The flights have to be conducted with a "Permit to Fly".

The purpose of this test is to ensure the approved modification and/or alteration functions properly and does not adversely affect aircraft operation.

**For all helicopters:**

The installation is assumed to have a self-contained power supply or connected to the aircraft through a previously approved electrical connection. If modification to the ship's system is necessary to support this installation, additional minor modifications with appropriate approval is necessary.

An approved system listed above can be installed by persons other than a certified mechanic/engineer if properly trained. Any mount system may be installed or removed by a Tyler Camera Systems trained technician, pilot or mechanic/engineer, but the installation must be checked and recorded by an mechanic/engineer in accordance with FAR 43.9. The Tyler trained technician may remove and re-install the camera package when ferrying to a job site. The weight and balance for all configurations will be checked before the flight with the mechanic/engineer and pilot before leaving for the job. Any training would be in accordance with EASA/JAR 145 or by an appropriate maintenance/manufacturing organization in accordance with applicable national requirements. The mount is designed to be installed with a minimum amount of alteration to the basic aircraft and a limited number of tools.





14218 Aetna St.  
Van Nuys, CA. 91401  
Installation Manual Report Number R44INSTALL-001

Robinson Model R-44 & Raven II  
Installation of the  
Tyler ROB-001 Universal Mount

STC Number SR 01272 LA

## SIDE VIDEO GIMBAL ASSEMBLY INSTRUCTIONS



Install on Left (shown) or Right side of helicopter.

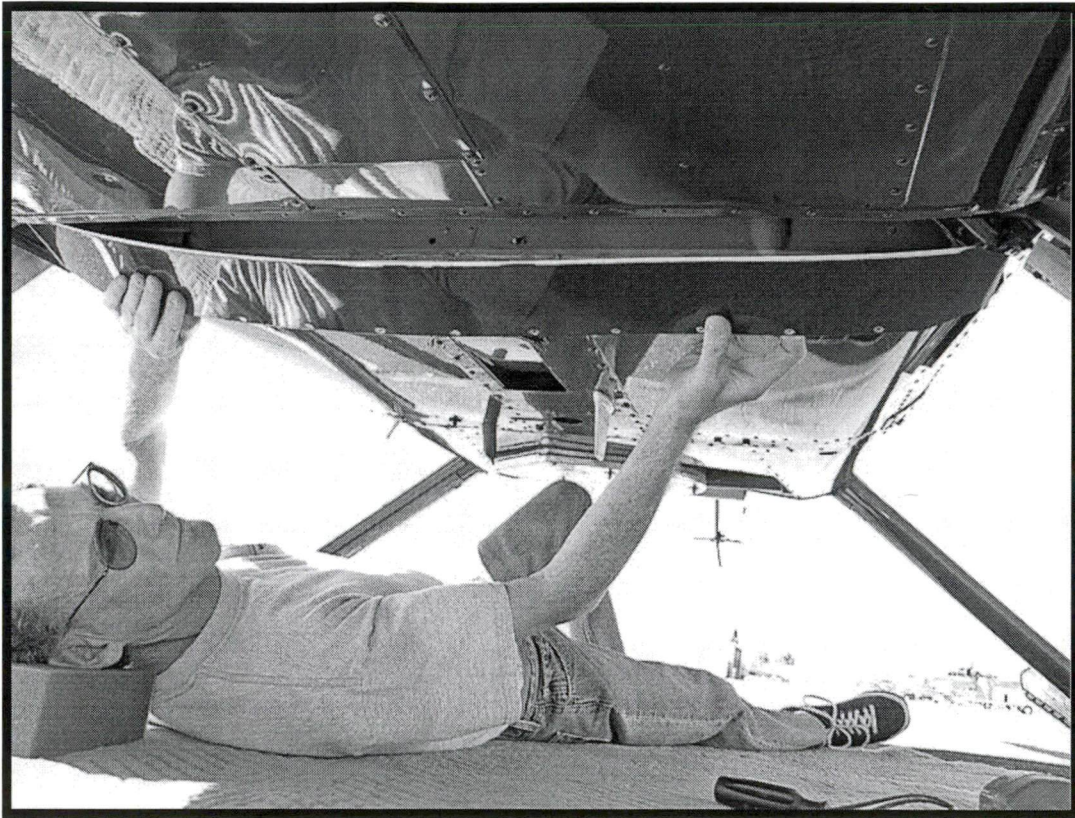




14218 Aetna St.  
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Installation Manual Report Number R44INSTALL-001

Robinson Model R-44 & Raven II  
Installation of the  
Tyler ROB-001 Universal Mount

STC Number SR 01272 LA



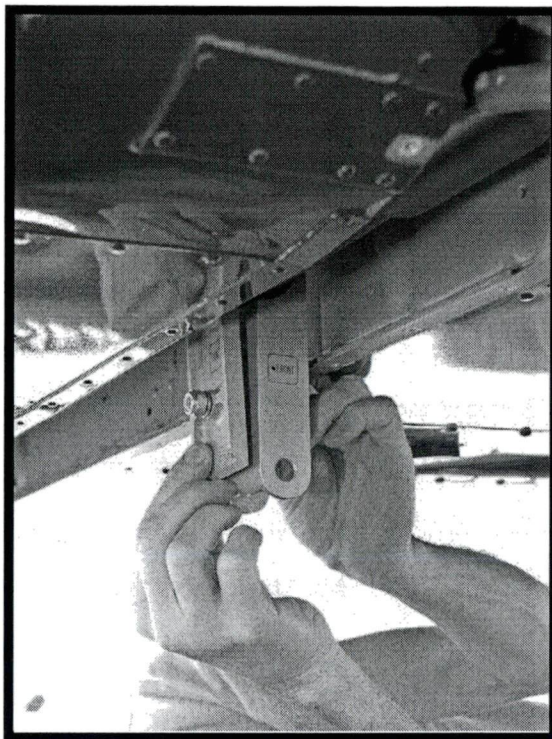
At the forward skid gear remove the forward skid gear cover.



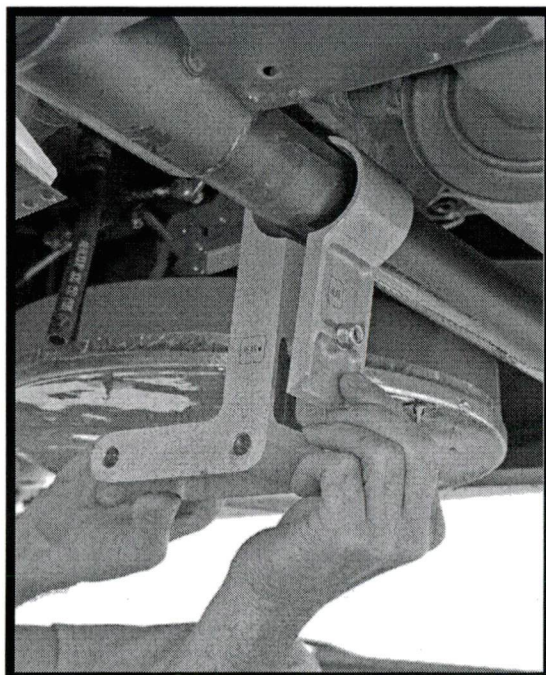
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Install both Front and both Rear skid gear clamps. Note: Leave bolts loose so clamps can be shifted into position when attaching the Lateral Support Tubes.  
**IMPORTANT:** After all support tubes are attached, tighten all bolts and nuts.



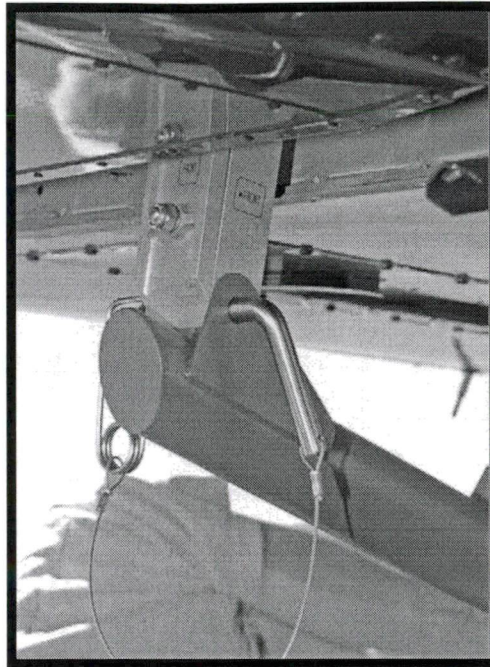




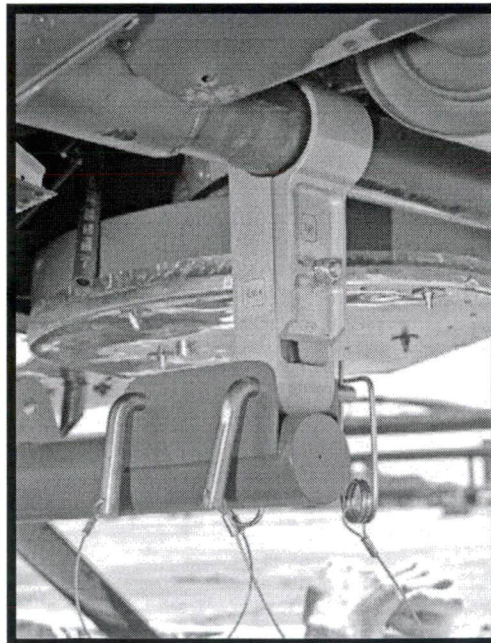
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Attach both fore-to-aft Support Tubes to both front Skid Gear Clamps  
and secure with 7/16" Pins and safety-clips.



Attach both fore-to-aft Support Tubes to both rear Skid Gear Clamps  
and secure with 7/16" Pins and safety-clips.

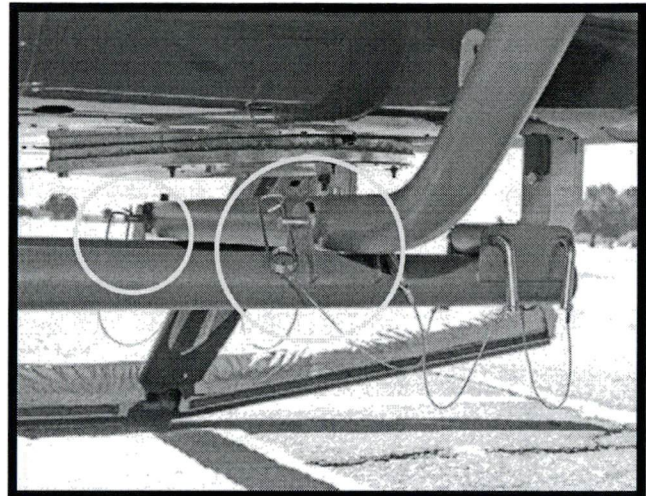
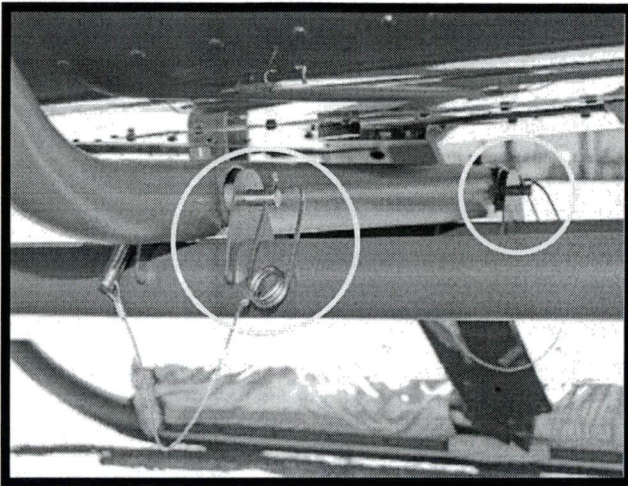




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Installation Manual Report Number R44INSTALL-001

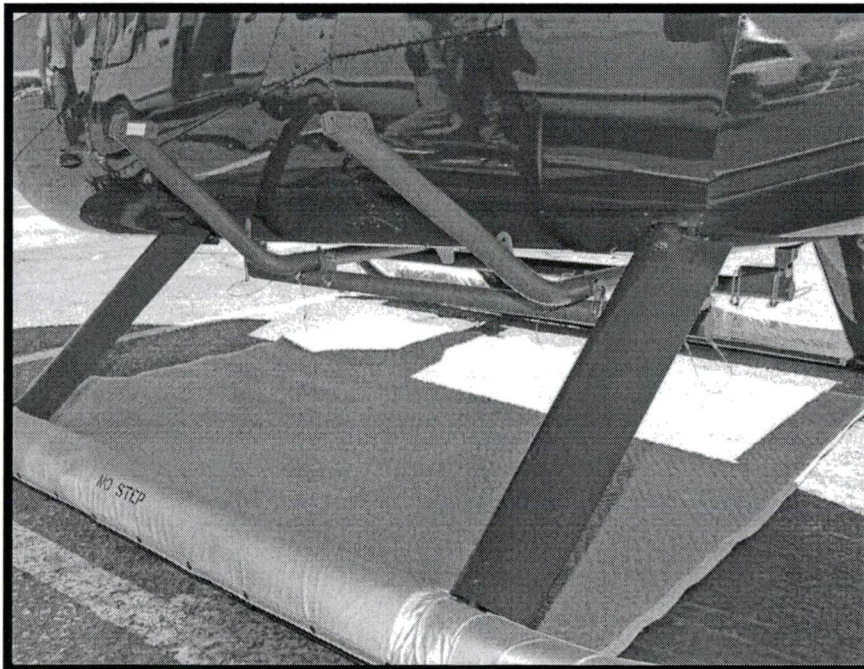
Robinson Model R-44 & Raven II  
Installation of the  
Tyler ROB-001 Universal Mount

STC Number SR 01272 LA



Install both lateral support tubes and secure with 7/16" Pins and safety-clips.

**IMPORTANT:** Now tighten all skid-gear clamp bolts and nuts.



**Note:** Lateral Tubes FACE IN toward each other.

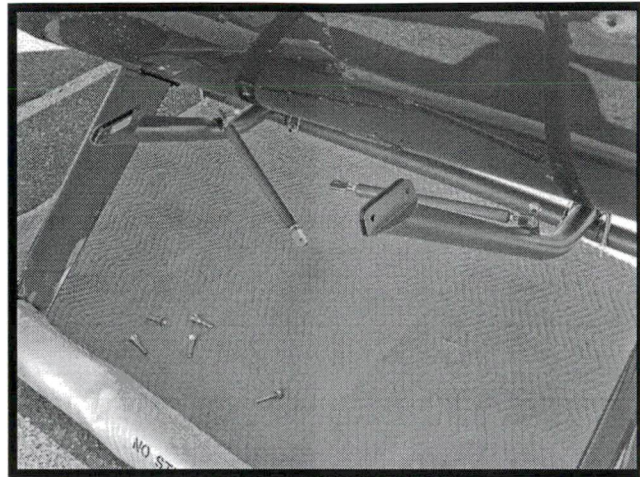
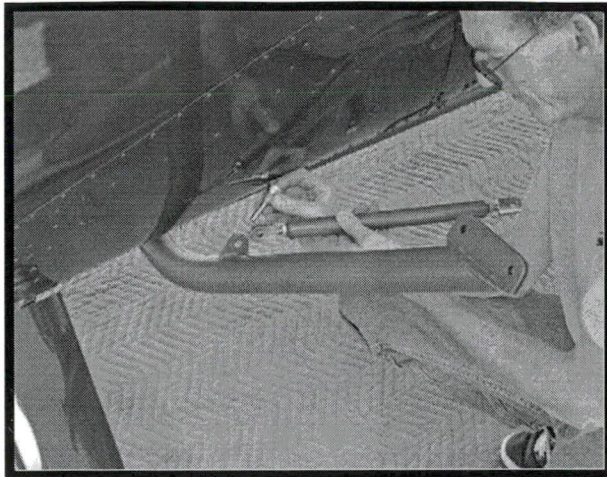




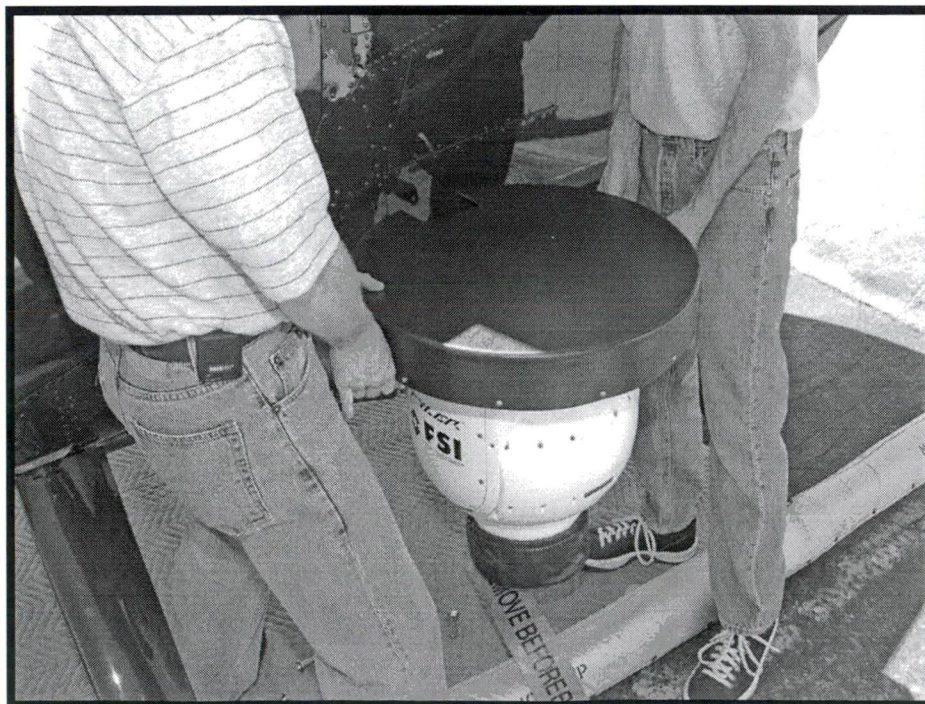
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Install the two (2) diagonal tie-rods to the Lateral Support Tubes and secure with 3/8" PIP-pins.



Attach the Video Gimbal (with suspension) to the vertical channels at the ends of the Lateral Support Tubes and secure with four (4) 3/8" PIP-pins.

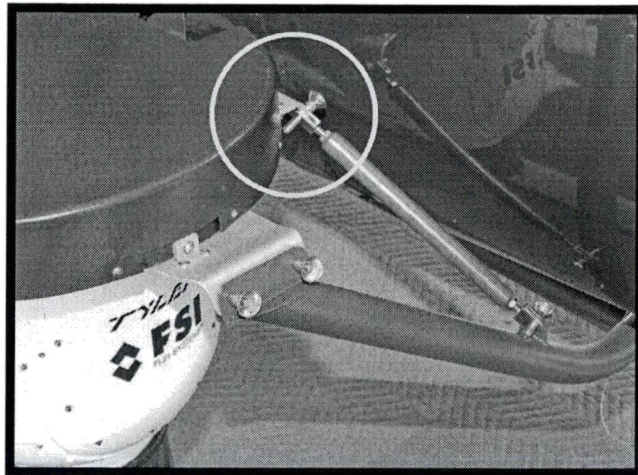
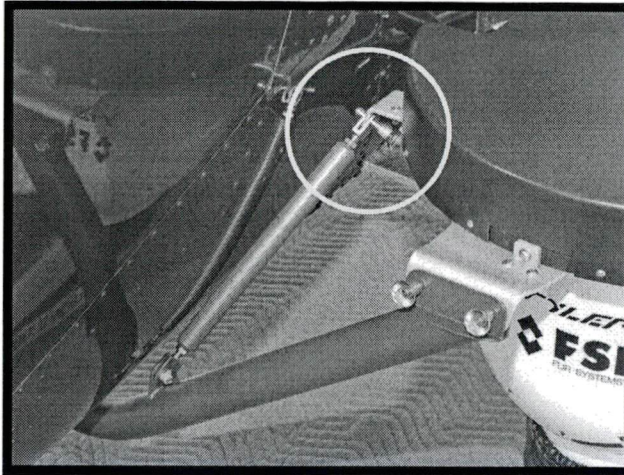




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Installation Manual Report Number R44INSTALL-001

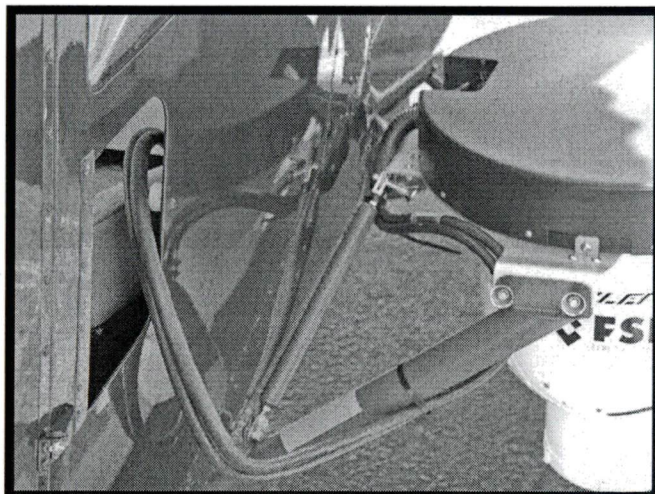
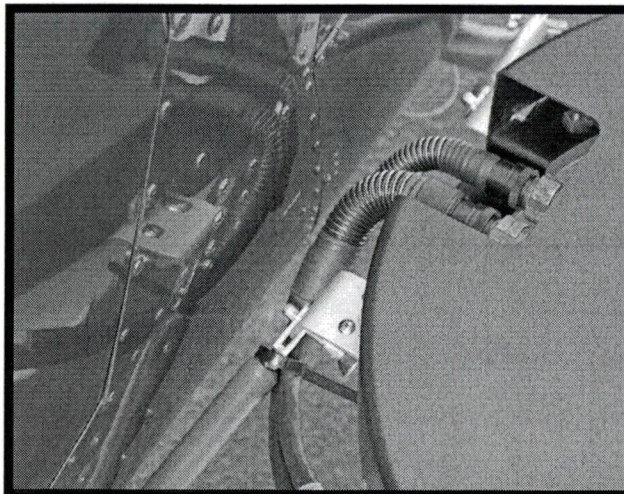
Robinson Model R-44 & Raven II  
Installation of the  
Tyler ROB-001 Universal Mount

STC Number SR 01272 LA



Connect the two (2) diagonal tie-rods from lateral support tubes to the Video Gimbal Suspension "circled" and secure with 3/8" Pip Pins.

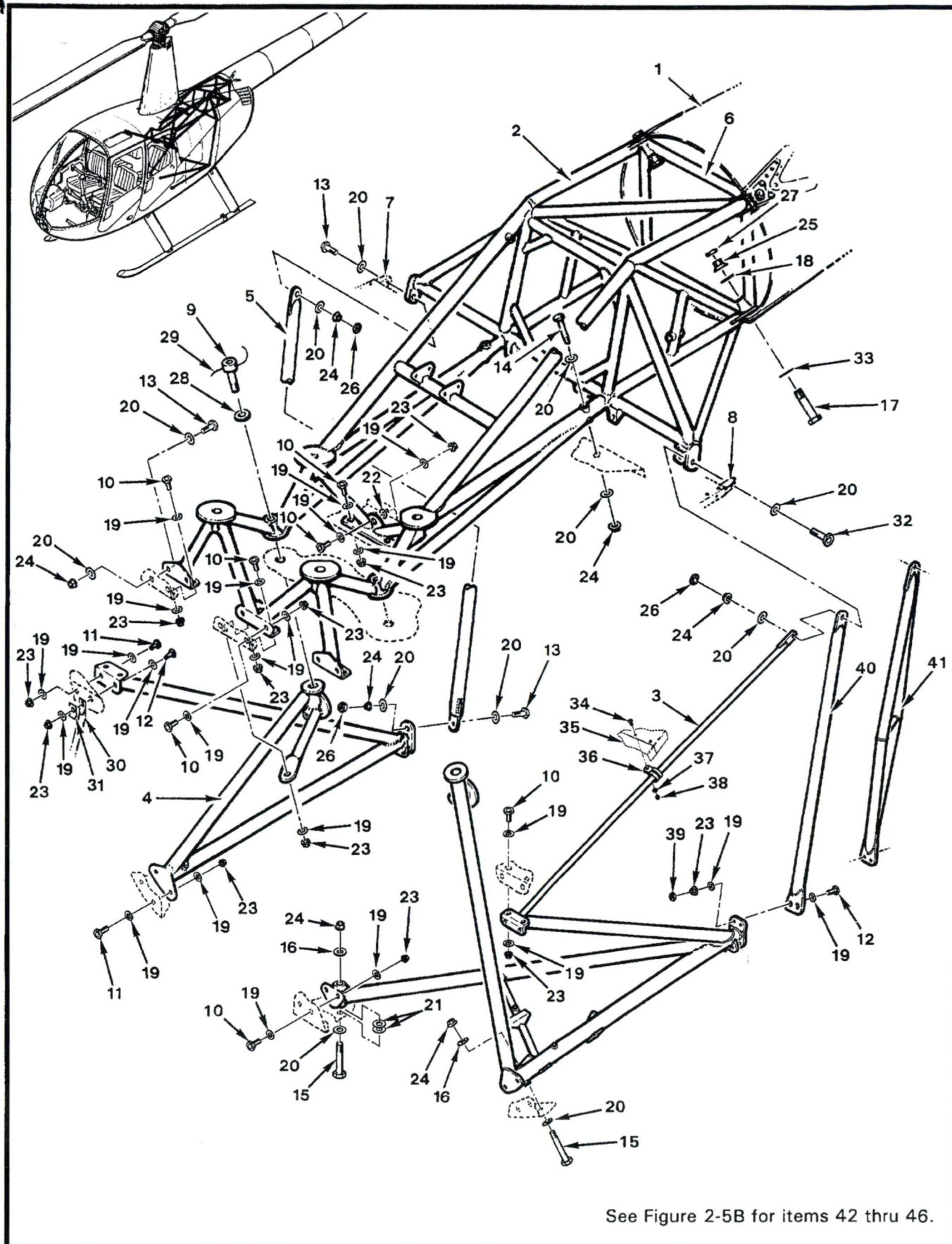
"Arrows" refer to: Pip pins used to fasten Video Gimbal (Last picture, previous page)



Route all power cables from Video Gimbal in to cabin and secure to Lateral Support Tubes (using tape or tie-wraps).

**-VIDEO GIMBAL assembly complete-**





See Figure 2-5B for items 42 thru 46.



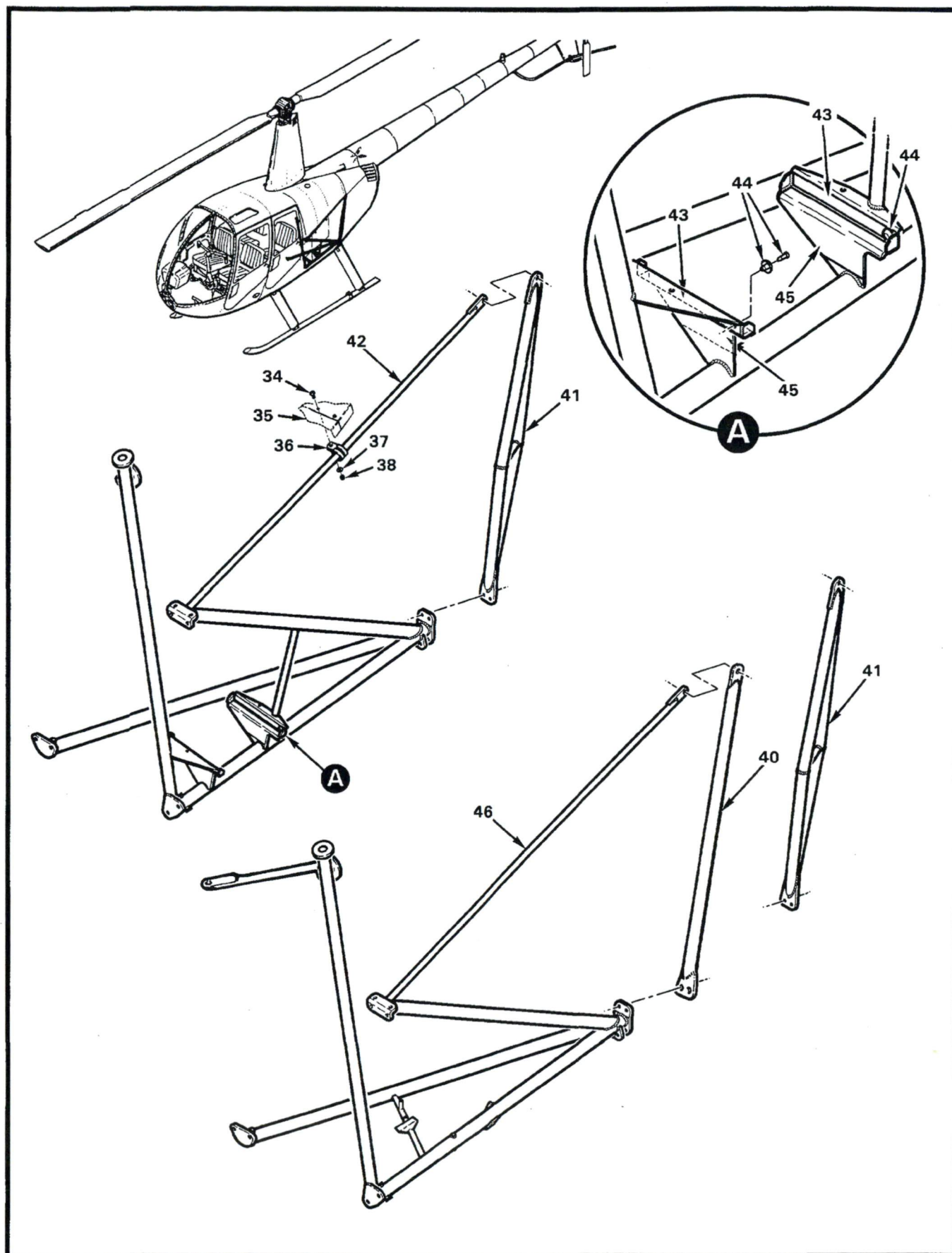


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	USABLE ON CODE	QTY PER ASSY
		WELDED FRAME ASSEMBLY			
2-5-1	C023	Tailcone Assembly (Ref)			
2	C020-1	Upper Frame Assembly . . . . .	X		1
	C020-2	Upper Frame Assembly (Ref, not shown. Includes provision for tie-downs.) . . . . .	X		1
3	C046-21	Lower Frame Assembly - LH (supersedes C046-19 assembly [item 46]) . . . . .	X		1
4	C046-2	Lower Frame Assembly - RH . . . . .	X		1
5	D046-3	Strut (RH) . . . . .	X		1
6	C237-1	Frame Assembly - Tailcone Attachment . . . . .	X		1
7	C384-6	Angle - RH . . . . .	X		1
8	C384-7	Angle - LH . . . . .	X		1
9	C722-2	Screw . . . . .	X		2
10	NAS6604-2	Bolt . . . . .	X		17
11	NAS6604-3	Bolt . . . . .	X		6
12	NAS6604-4	Bolt . . . . .	X		4
13	NAS6605-4	Bolt . . . . .	X		6
14	NAS6605-21	Bolt . . . . .	X		2
15	NAS6605-24	Bolt . . . . .	X		3
16	NAS1149F0563P	Washer . . . . .	X		2
17	NAS6607-24	Bolt . . . . .	X		4
18	C141-4	Washer . . . . .	X		4
19	NAS1149F0432P	Washer . . . . .	X		54
20	NAS1149F0532P	Washer . . . . .	X		24
21	NAS1149F0532P	Washer (or NAS1149F0563P, 2 maximum) . . . . .	X		A/R
22	NAS1149F0432P	Washer (or NAS1149F0463P, 2 maximum) . . . . .	X		A/R
23	MS21042L4	Nut . . . . .	X		27
24	MS21042L5	Nut . . . . .	X		12
25	NAS1291-7	Nut . . . . .	X		4
26	B330-16	Palnut . . . . .	X		3
27	B330-21	Palnut . . . . .	X		4
28	MS20002C10	Washer . . . . .	X		2
29	MS20995C32	0.032 in. dia Safety Wire . . . . .	X		A/R
		(Cont'd)			

# ROBINSON ILLUSTRATED PARTS CATALOG

MODEL R44

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	USABLE ON CODE	QTY PER ASSY
		WELDED FRAME ASSEMBLY (Cont'd)			
2-5-30	C381-1	Strap Assembly (Ref; see Figure 2-39)			
31	C632-1	Angle . . . . .	X		2
32	NAS6605-6	Bolt . . . . .	X		1
33	NAS1149F0732P	Washer . . . . .	X		4
34	MS27039C0806	Screw . . . . .	X		1
35	C234	Firewall - Horizontal (Ref)			
36	MS21919WDG8	Clamp . . . . .	X		1
37	NAS1149FN816P	Washer . . . . .	X		1
38	MS21042L08	Nut . . . . .	X		1
39	B330-13	Palnut . . . . .	X		2
40	D046-2	Strut (LH) . . . . .	X		1
41	D046-1	Strut (LH, ship S/N 10001 and higher) . . . . .	X		1
		* * *			
2-5B-42	C046-23	Lower Frame Assembly - LH (ship S/N 10606 and higher)	X		1
43	A701-3	Tape (0.5 in. wide polyethylene) . . . . .	X		A/R
44	PPR-4850B	Push Rivet . . . . .	X		2
45	A701-5	Tape (2 in. wide polyethylene) . . . . .	X		A/R
46	C046-19	Lower Frame Assembly - LH (Ref, no longer available. For older O-540 engine ships, and IO-540 engine ships [S/N 10605 and prior]. Has provision for "long" [10.05 in. length] battery box.)			



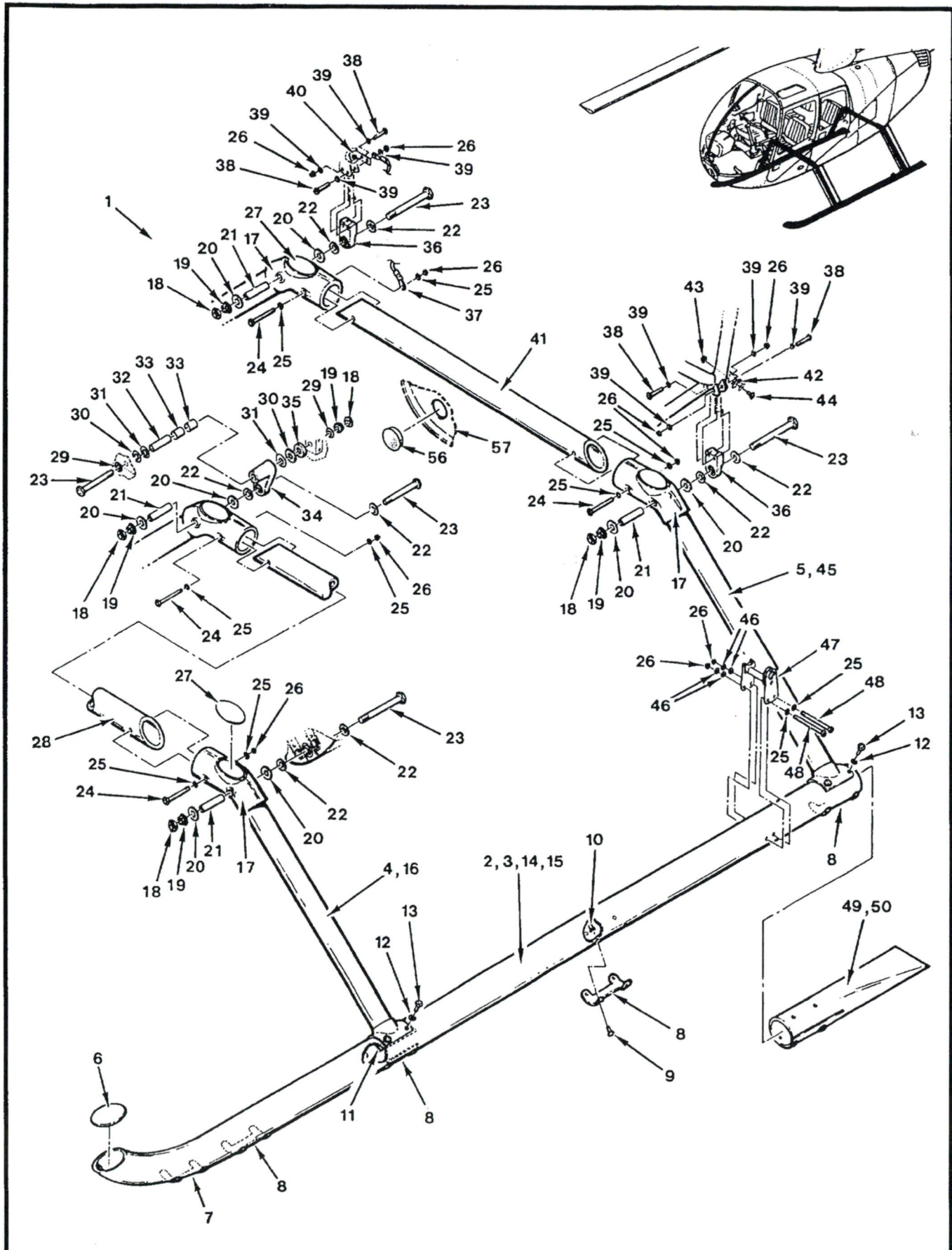


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	USABLE ON CODE	QTY PER ASSY
		LANDING GEAR ASSEMBLY			
3-1-1	C014-8	Landing Gear Assembly (Incl items 6 thru 17, 24 thru 28, 41, and 45 thru 50) . . . . .	X		1
	C014-22*	Landing Gear Assembly - Extended Gear (Incl items 6 thru 15, 17, 24 thru 28, 41, 46 thru 52, and 54) . . . . .	X		1
2	C014-11	Skid Tube Assembly (LH; includes items 6 thru 11, and 14)	X		1
3	C014-12	Skid Tube Assembly (RH; includes items 6 thru 11, and 15)	X		1
4	C014-10	Strut Assembly (fwd; includes items 16, 17, 21, and 27)	X		2
5	C014-9	Strut Assembly (aft; includes items 17, 21, 27, and 45)	X		2
6	C247-1	Rain Cap . . . . .	X		2
7	A667-8	Shoe (curved) . . . . .	X		2
8	A667-7	Shoe (straight) . . . . .	X		8
9	A142-1	Screw . . . . .	X		40
10	NAS1330H3K116L	Rivnut . . . . .	X		20
11	C246-1	Liner Assembly (includes nutplates) . . . . .	X		2
12	NAS1149F0663P	Washer . . . . .	X		16
13	NAS6606-4	Bolt . . . . .	X		16
14	C242-1	Skid Tube (LH) . . . . .	O		1
15	C242-2	Skid Tube (RH) . . . . .	O		1
16	C239-2	Strut Assembly (forward) . . . . .	O		2
17	C240-1	Elbow . . . . .	X		4
18	B330-21	Palnut . . . . .	X		5
19	NAS1291-7	Nut . . . . .	X		5
20	NAS1149F0763P	Washer . . . . .	X		8
21	C278-1	Spacer . . . . .	X		4
22	C141-4	Washer . . . . .	X		8
23	NAS6607-52	Bolt (or NAS6607-54 [aft LH location], if siren installed) .	X		5
24	NAS6604-41	Bolt (or NAS6604-43 [aft LH location], if siren installed) .	X		4
25	NAS1149F0432P	Washer . . . . .	X		12
26	MS21042L4	Nut . . . . .	X		12
27	C247-2	Rain Cap (install using B270-1 sealant) . . . . .	X		4
	B270-1	Sealant (2-oz tube) . . . . .	X		A/R
28	C241-2	Cross Tube (forward) . . . . .	X		1
29	NAS1149F0732P	Washer . . . . .	X		2
		*Optional; not shown. (Cont'd)			



FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	USABLE ON CODE	QTY PER ASSY
		LANDING GEAR ASSEMBLY (Cont'd)			
3-1-30	C141-5	Washer . . . . .	X		2
31	A214-10	Washer . . . . .	X		2
32	C105-1	Journal . . . . .	X		1
33	LJS-1016	Bearing . . . . .	X		2
34	C276-1	Shackle Assembly . . . . .	X		1
35	C141-6	Washer . . . . .	X		1
36	C574-1	Support Assembly . . . . .	X		2
37	A936-2	Wire Assembly . . . . .	X		1
38	NAS6604-17	Bolt . . . . .	X		4
39	A141-11	Washer . . . . .	X		8
40	D310-6	Bracket (RH) . . . . .	X		1
41	C241-1	Cross Tube (aft) . . . . .	X		1
42	D310-5	Bracket (LH) . . . . .	X		1
43	A31007	Nut . . . . .	X		2
44	S14119	Screw . . . . .	X		2
45	C239-1	Strut Assembly (aft) . . . . .	O		2
46	NAS1149F0463P	Washer . . . . .	X		8
47	C719-1	Support Assembly . . . . .	X		2
48	NAS6604-47	Bolt . . . . .	X		4
49	C937-1	Extension - Skid (LH) . . . . .	X		1
50	C937-2	Extension - Skid (RH) . . . . .	X		1
51	B270-9	Adhesive (to fill gaps in items 49 and 50) . . . . .	X		A/R
52	C239-11*	Strut Assembly (extended gear, forward) . . . . .	O		2
53	C014-24*	Strut Assembly (Extended gear, forward; for spares. In- cludes items 17, 21, 27, and 52.) . . . . .	X		2
54	C239-10*	Strut Assembly (extended gear, aft) . . . . .	O		2
55	C014-23*	Strut Assembly (Extended gear, aft; for spares. Includes items 17, 21, 27, and 54.) . . . . .	X		2
56	DP-1250	Plug - Hole (2740) . . . . .	X		1
57	C015	Cabin Assembly (Ref)			
		*Optional; not shown.			



## SECTION 5

### LANDING GEAR

#### 5.000 LANDING GEAR

##### 5.001 Introduction

This section covers the removal and installation of the landing gear assembly, cross tubes, skid tubes, skid shoes, ground handling wheel supports, and strut fairings.

##### 5.002 Description

Standard landing gear consists of two aluminum skid tubes, four steel struts, two aluminum cross tubes, and four forged aluminum elbows. The landing gear connects to the fuselage at each elbow. Aerodynamic fairings are clamped to each strut. The right forward connection is to a pivoting shackle which allows the forward cross tube to flex. The right, aft connection is to a flexible steel tube frame which allows the aft cross tube to flex. Skid shoes, constructed of 4130 steel with a hard wear surface, protect the underside of the skid tubes during landing.

R44 Clippers have permanently inflated utility floats or emergency pop-out floats mounted to skid tubes and incorporate extended steel struts and aft skid extensions to support the floats. Strut fairings are not installed with utility floats.

#### 5.100 LANDING GEAR ASSEMBLY

##### 5.110 Landing Gear Removal

1. Remove C388 channels and C475 cover at forward cross tube.
2. Remove D040 aft engine cowling and D041 engine belly cowling.
3. Disconnect A936 ground wire at aft, right elbow.
4. Hoist helicopter by main rotor hub per Section 1.220 until skids clear ground by approximately 4 inches.
5. Remove four NAS6607 landing gear mounting bolts. Remove forward, left mounting bolt first. Then rotate forward, right shackle to align mounting bolt with access hole in bulkhead before removing bolt. Forward bolts can be accessed from inside aft baggage compartments and through access holes under carpet at aft outboard corners of aft floor.

LANDING GEAR INSTALLATION

<u>NUMBER</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	A214-10	Washer
2	C014-10	Strut Assembly (fwd)
3	C105-1	Journal
4	LJS-1016	Bearing
5	C014-5	Shackle Assembly
6	C141-5	Washer
7	AN960-716L	Washer
8	D310-5	Aft Cowl Bracket, LH (Shown)
	D310-6	Aft Cowl Bracket, RH (Not Shown)
9	B330-21	Palnut
10	NAS679A7	Nut
11	AN960-716	Washer
12	C278-1	Spacer
13	C241-1	Cross Tube (rear)
14	C014-9	Strut Assembly (rear)
15	C241-2	Cross Tube (fwd)
16	C141-6	Washer
17	C294-2	Bearing Assembly
18	C141-4	Washer
19	NAS6607-53	Bolt
20	A141-11	Washer
21	NAS6604-17	Bolt
22	C014-7	Support Assembly
23	C240-1	Elbow
24	NAS1291-4	Nut
25	C247-2	Rain cap
26	NAS6604-41	Bolt
27	AN960-416L	Washer
28	A31007	Nut
29	S14119	Screw

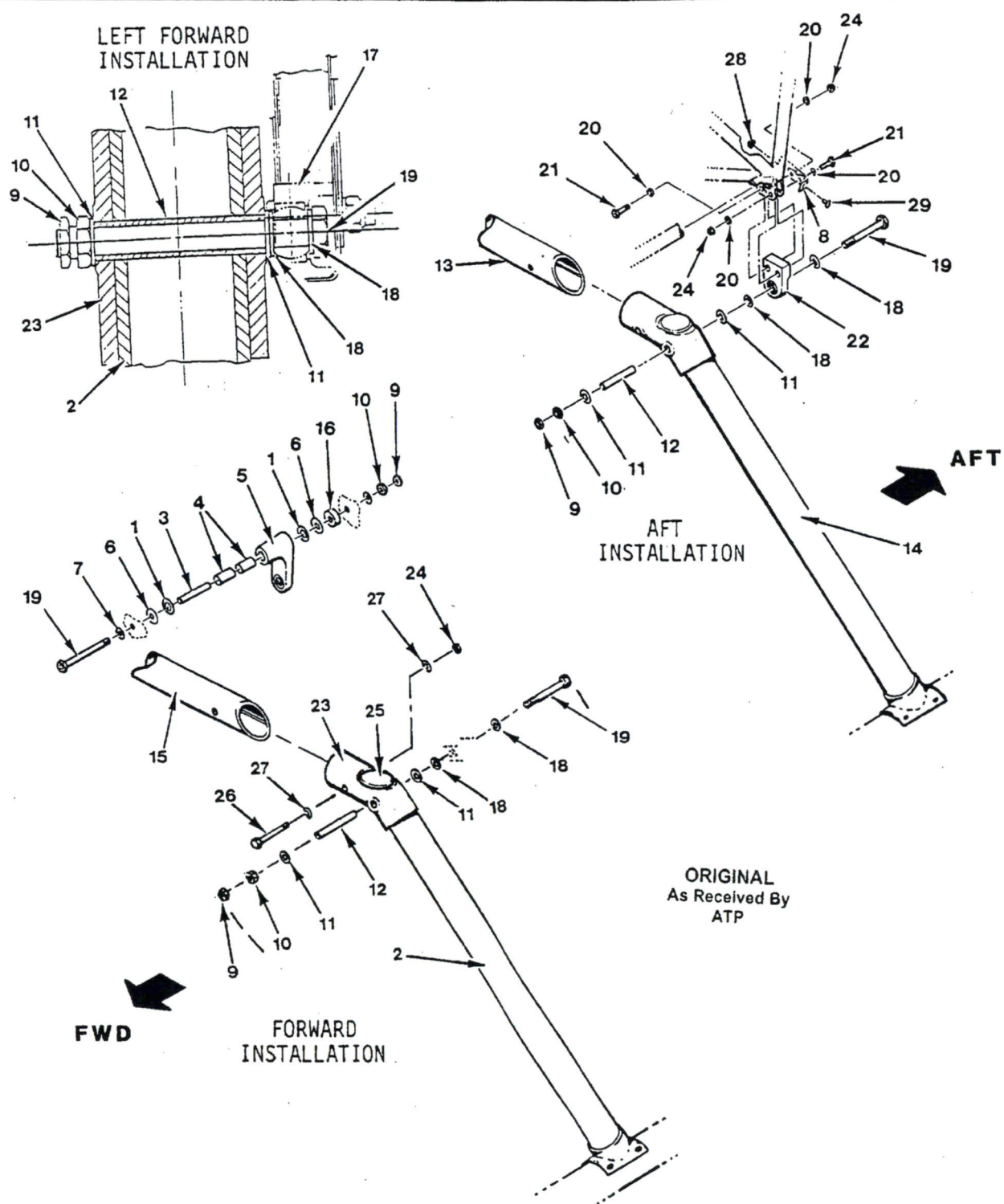


FIGURE 5-1 LANDING GEAR INSTALLATION



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**5.120 Landing Gear Installation**

- a) Hoist the helicopter per Section 1.
- b) Lift the right side of the landing gear and install both right side mounting bolts per Figure 5-1. Torque per Section 1.320, install palnuts, and torque stripe. Repeat on left side.
- c) Connect ground wire at right aft elbow and attach battery drain tube to aft cross tube.
- d) Install the C475-2 cover and the C388-1 channels at the forward cross tube.
- e) Install all cowling.

**5.200 CROSS TUBES****5.210 Cross Tube Removal**

The aft cross tube must be replaced if it has yielded so that the tail skid is less than 30 inches from the ground.

**NOTE**

For hard landing inspection, see Section 2.550.

- a) Remove landing gear per Section 5.110.
- b) Disconnect one of the struts from the skid tube.
- c) Remove the bolts in the elbows at each end of the cross tube and tap the elbows off of the cross tube.

**5.220 Cross Tube Installation**

- a) Install cross tube into the elbows and install bolts per Figure 5-1. Torque bolts per Section 1.320.
- b) Connect the unbolted strut to the skid tube and torque the NAS6606-4 bolts per Section 1.320.
- c) Install landing gear per Section 5.120.

**5.300 SKID TUBES****5.310 Skid Tube Removal**

- a) Raise one side of the helicopter by jacking under one end of the aft cross tube, one inch inboard of the elbow.
- b) Remove the 4 bolts at each landing gear strut. Remove the skid tube.
- c) Remove the C937 skid extension by removing the aft skid shoe. Remove the C719-1 wheel support.

**5.320 Skid Tube Installation**

- a) Install the C937 skid extension and aft skid shoe onto the C014-11 or -12 skid tube assembly. Install the C719-1 wheel support and torque per Section 1.330; the reduced torque required by Section 1.330 is required to avoid damaging the skid tube.
- b) Place the skid tube assembly under the fore and aft gear struts and install the attach bolts. Torque the NAS6606-4 attach bolts per Section 1.320.
- c) Seal the slot in the side of the skid extension with B270-9 adhesive, if required.

**5.330 Skid Shoe Replacement**

The two A667-8 forward skid shoes and seven A667-7 skid shoes (four on the left skid and three on the right) are fastened with A142-1 screws. Use new screws when replacing shoes and torque to 27 in.-lb. Skid shoes must be replaced when the bottoms have worn to 0.050 inch thick at their thinnest point.

- a) To inspect or replace the aft shoe on each skid, install ground handling wheels to lift the helicopter or jack up the helicopter at the aft landing gear cross tube per Figure 5-3B. Remove and discard worn skid shoes and screws and replace.
- b) To inspect or replace all other skid shoes, install ground handling wheels, pull the tail down and place wood blocks under the skids to hold the skids up per Figure 5-3A. Replace any worn shoes.



**5.340 Ground Handling Wheel Support Replacement**

- a) Remove the two mounting bolts and remove the C719-1 support.
- b) Install the support using NAS6604-47 bolts and torque per Section 1.330. The reduced torque of Section 1.330 is required to avoid damaging the skid tube.

**5.350 Skid Extension Replacement**

- a) Raise one side of the helicopter by jacking under one end of the aft cross tube, one inch inboard of the elbow.
- b) Remove the aft skid shoe and remove the four bolts attaching the aft strut to the skid tube.
- c) Remove the C937-1 or -2 skid tube extension and replace.
- d) Attach the strut to the skid tube and torque the four NAS6606-4 bolts per Section 1.320. Install the skid shoe.
- e) Seal the slot in the side of the skid extension with B270-9 adhesive.

**5.400 STRUT FAIRINGS****5.410 Strut Fairing Removal**

- a) Loosen the clamps through the access hole on the inboard side of the fairing.
- b) Remove all screws along the trailing edge.
- c) Unscrew the clamps and slide the fairing off of the strut.

### 5.420 Strut Fairing Installation

- a) Verify that a B162-3 clip nut is installed at each hole at the trailing edge of the fairing and that the strut clamps pass through both of the clips riveted to the fairing.
- b) Slide the fairing onto the strut and loosely fasten the two clamps.
- c) Install and tighten all screws along the trailing edge.
- d) Position fairings by placing a long straight edge across both forward and aft fairings at the lower clamps (See below). The distance from the straight edge to the centerline of the trailing edge should measure 1.4 inches. Check for 0.10 inch clearance all around both ends of the fairing. Remove fairing to trim and reinstall, if required.
- e) Apply B270-10 adhesive to both clamp threads and torque per Section 1.330. Verify 1.4 inch dimension with the straight edge.

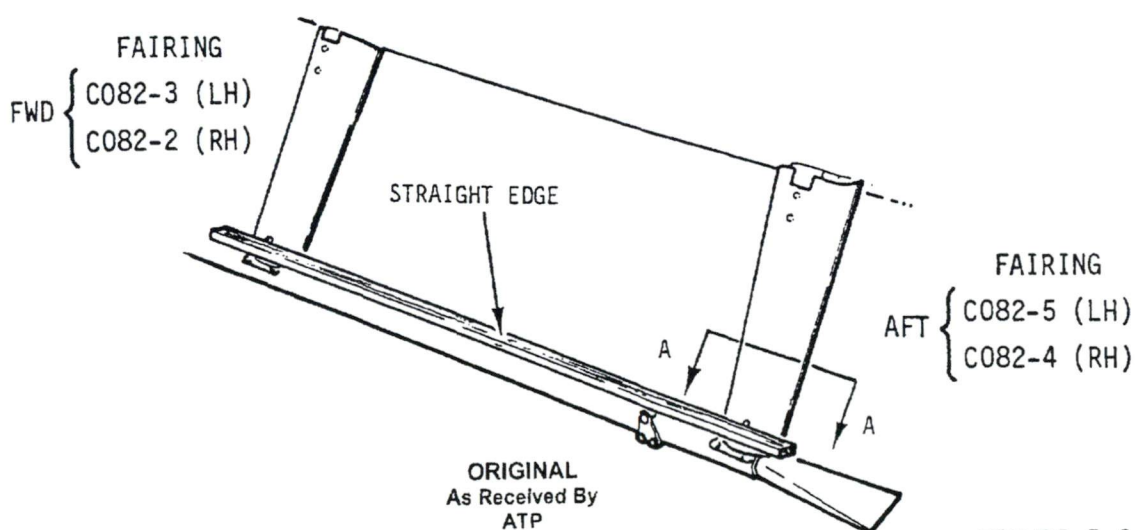
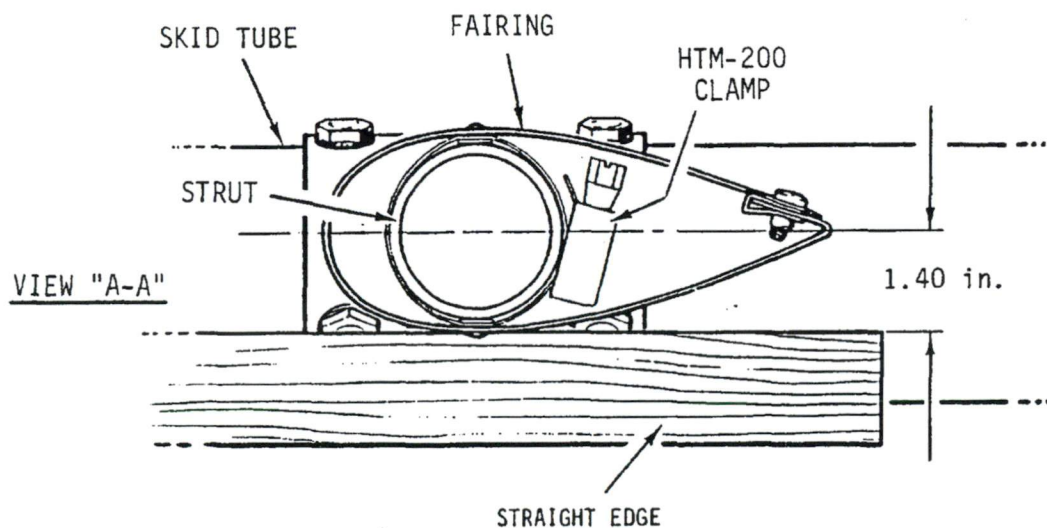


FIGURE 5-2



### 5.500 UTILITY FLOAT LANDING GEAR

The Robinson R44 Clipper helicopter may be flown with float landing gear or standard landing gear installed. When changing configurations, remove complete utility float landing gear and install complete standard landing gear. Do not remove float tubes from landing gear skid tubes unless necessary for repairs.

#### **CAUTION**

Float landing gear can only be installed on R44 Clipper helicopters.

#### 5.510 Utility Float Landing Gear Removal

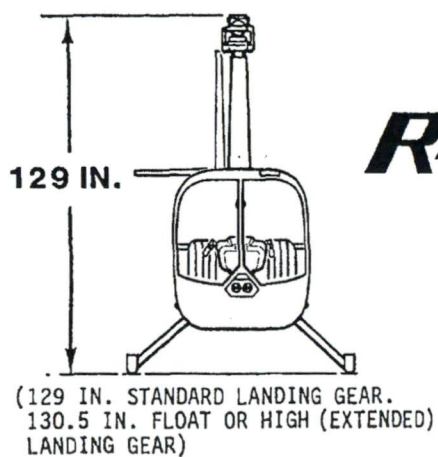
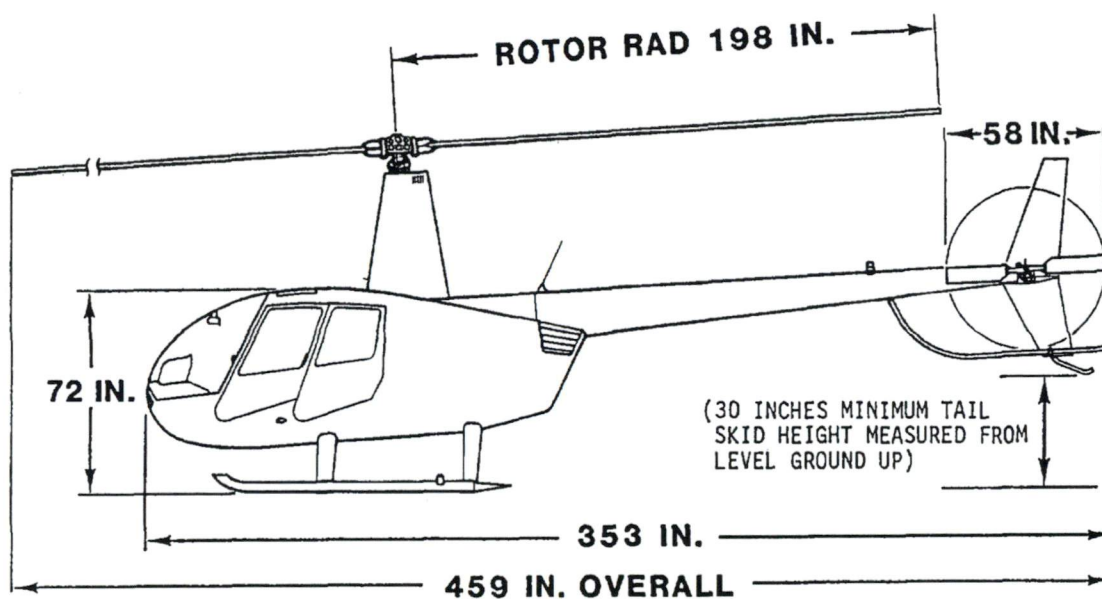
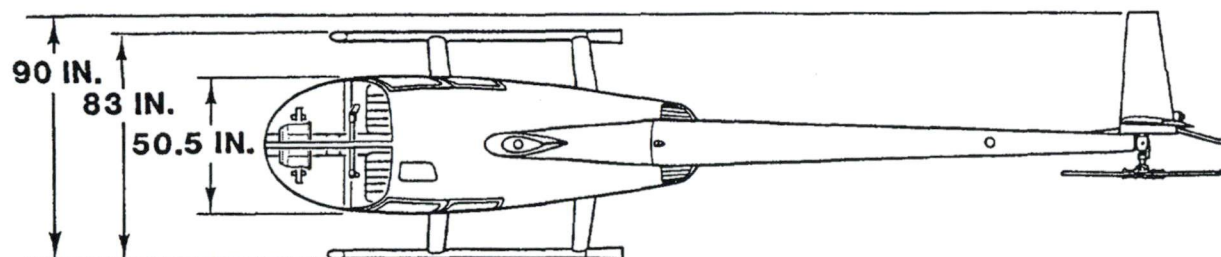
1. Remove float landing gear per Section 5.110.
2. Install standard landing gear per Section 5.120.
3. Remove C050 float stabilizer per Section 4.326.
4. Remove D372-2 air dams aft of static ports. Reinstall attaching screws.
5. Revise Equipment List/Weight and Balance data (located in helicopter Pilot's Operating Handbook, Section 6) using following information:

Part Number	Description	Weight (lb)	CG Arm (in.)	Moment (in.-lb)
C034-2	Utility Float Landing Gear	104.3	95.2	9929
C050-2	Utility Float Stabilizer	1.1	335.4	369
C014-8	Standard Landing Gear	60.9	86.3	5256

6. Perform flight check per Section 2.220.
7. Check and adjust autorotation RPM per Section 10.250 (usually requires lengthening pitch links approximately 1 full turn at upper rod end).



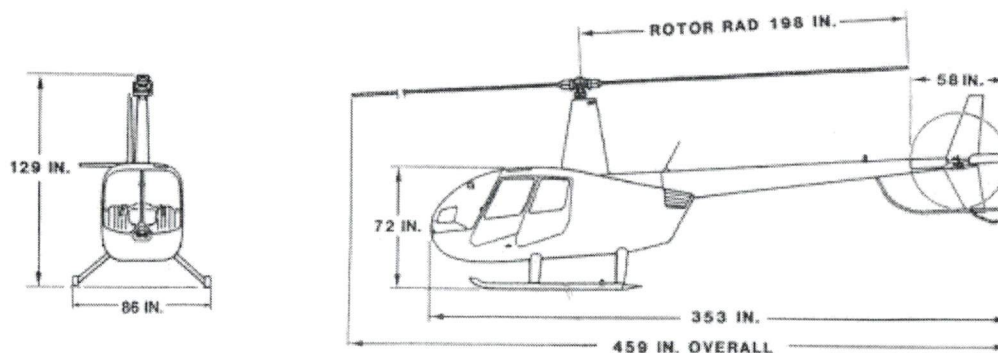
**1.006 EXTERNAL DIMENSIONS**



***R44 & R44 II***

**EXTERNAL DIMENSIONS**

## R44 Raven II Specifications & Dimensions



### Weights

Gross Weight	2,500 lb
Empty Weight Equipped (incl oil & avionics)	1,506 lb
Standard Fuel (30.6 gal)	184 lb
Auxiliary Fuel (18.3 gal)	110 lb
Passengers and Baggage w/standard fuel	810 lb
Passengers and Baggage w/auxiliary fuel	700 lb

### Performance

Cruise Speed	135 mph (117 kts)
Maximum Range (no reserve)	approx 400 miles (348 nm)
Hover Ceiling IGE @ 2500 lb	8,950 feet
Hover Ceiling OGE @ 2300 lb	7,500 feet
Hover Ceiling OGE @ 2500 lb	4,500 feet
Rate-of-Climb @ 2500 lb & 6000 feet	over 1,000 fpm
Maximum Operating Altitude	14,000 feet

**ROBINSON  
MODEL R44 II**

**SECTION 2  
LIMITATIONS**

**WEIGHT LIMITS**

Maximum gross weight	2500 lbs (1134 kg)
Minimum gross weight	1600 lbs (726 kg)
Maximum per seat including baggage compartment	300 lbs (136 kg)
Maximum in any baggage compartment	50 lbs (23 kg)
Minimum solo pilot plus forward baggage weight with all doors installed is 150 lbs (68 kg) unless a weight and balance computation shows CG is within limits. Ballast may be required.	

**CENTER OF GRAVITY (CG) LIMITS**

See figure on page 2-4. Datum line is 100 inches forward  
of main rotor shaft centerline.



**PREVENTIVE MAINTENANCE BY THE PILOT (cont'd)**

After completing the work, when required, the pilot must enter the following in the appropriate logbook:

1. Date work accomplished.
2. Description of work.
3. Total hours on aircraft.
4. Pilot certificate number.
5. Signature of pilot.

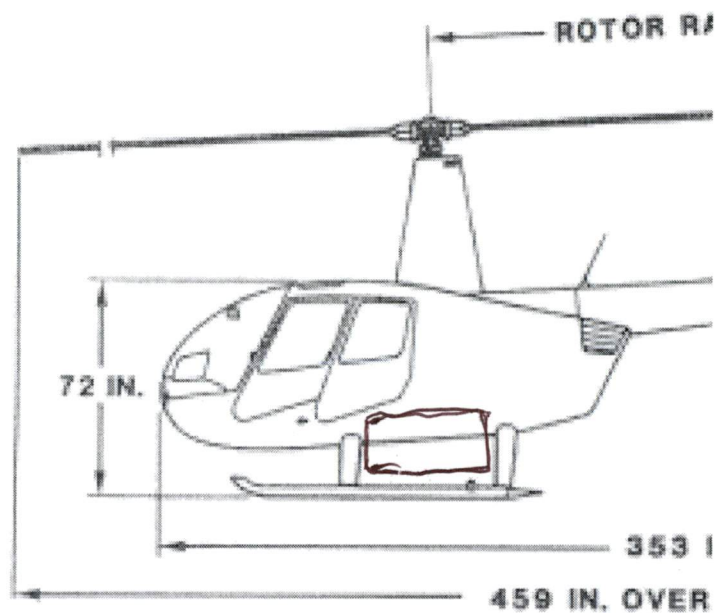
**ALTERATIONS TO AIRCRAFT**

The compactness and many unique design features of the R44 helicopter make any modification inadvisable. Dynamic characteristics and susceptibility to fatigue of the rotor, drive, and control systems make any modification to these systems extremely hazardous.

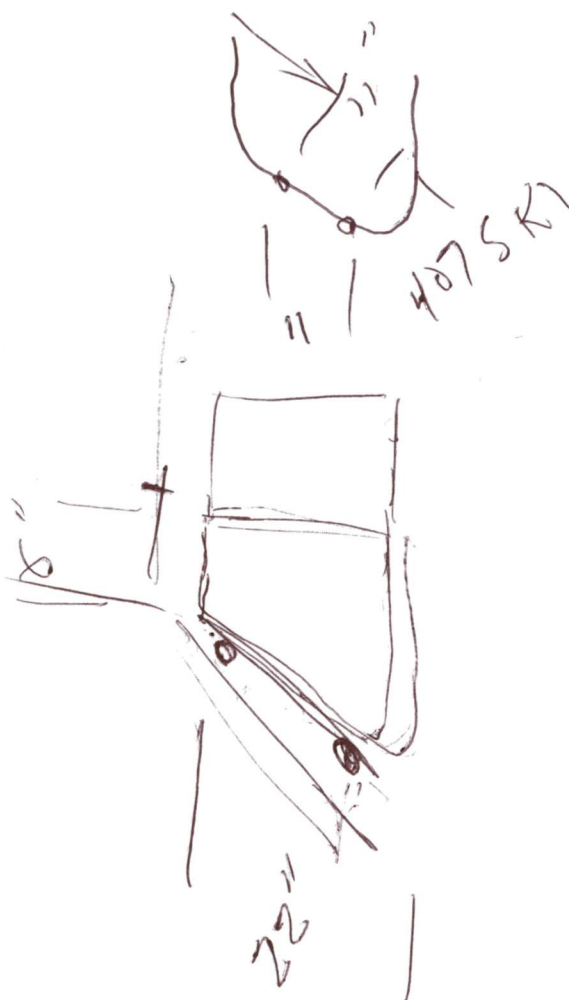
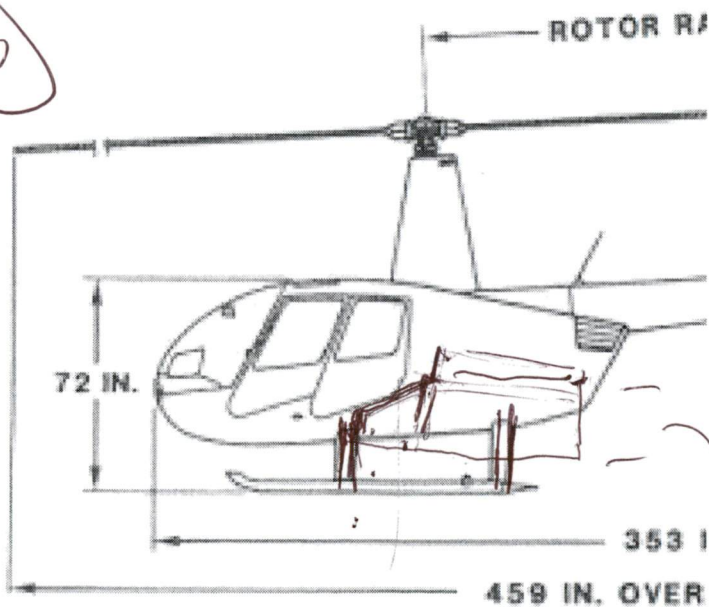
Also hazardous is installation of any electronic equipment or avionics not factory-approved and supplied. The compactness of the console and tunnel containing the controls and wire bundles makes installation of any additional wires likely to interfere with free control movement. Even more importantly, the electronic tachometers and governor are affected by other electronic devices. Their reliability and accuracy is essential for safe operation of the helicopter, and installation of an electrical device not tested and approved by the factory could easily result in a hazardous condition.

Because of these potential hazards, Robinson Helicopter Company does not approve any modification or alteration other than those which are factory-supplied and installed by factory-trained personnel.

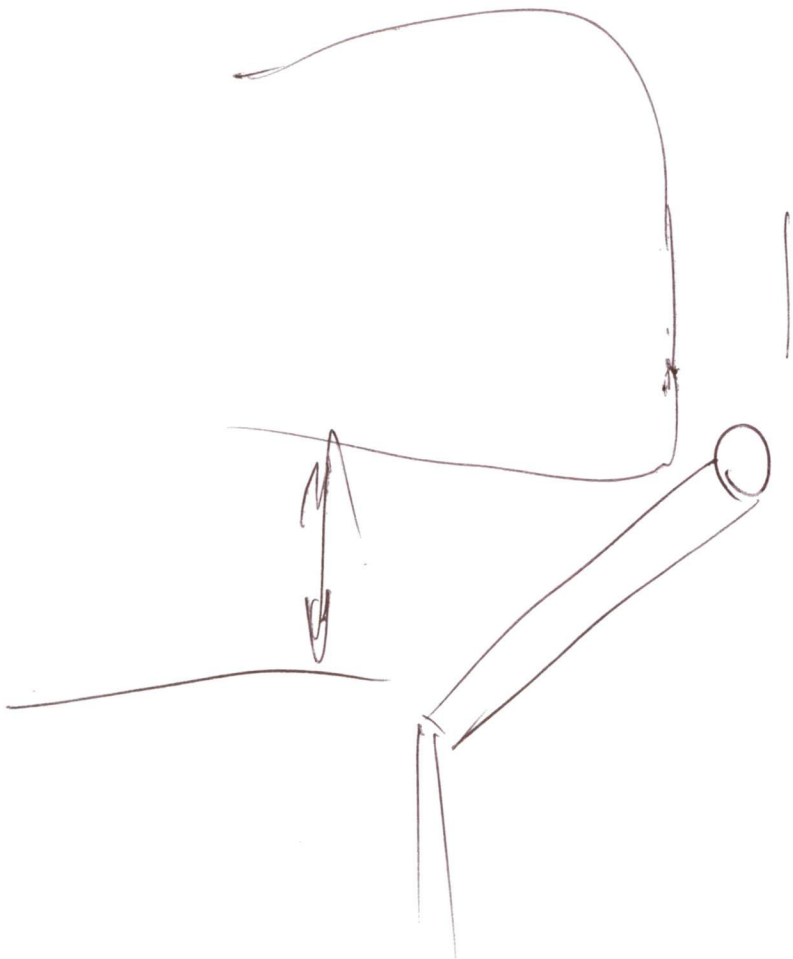
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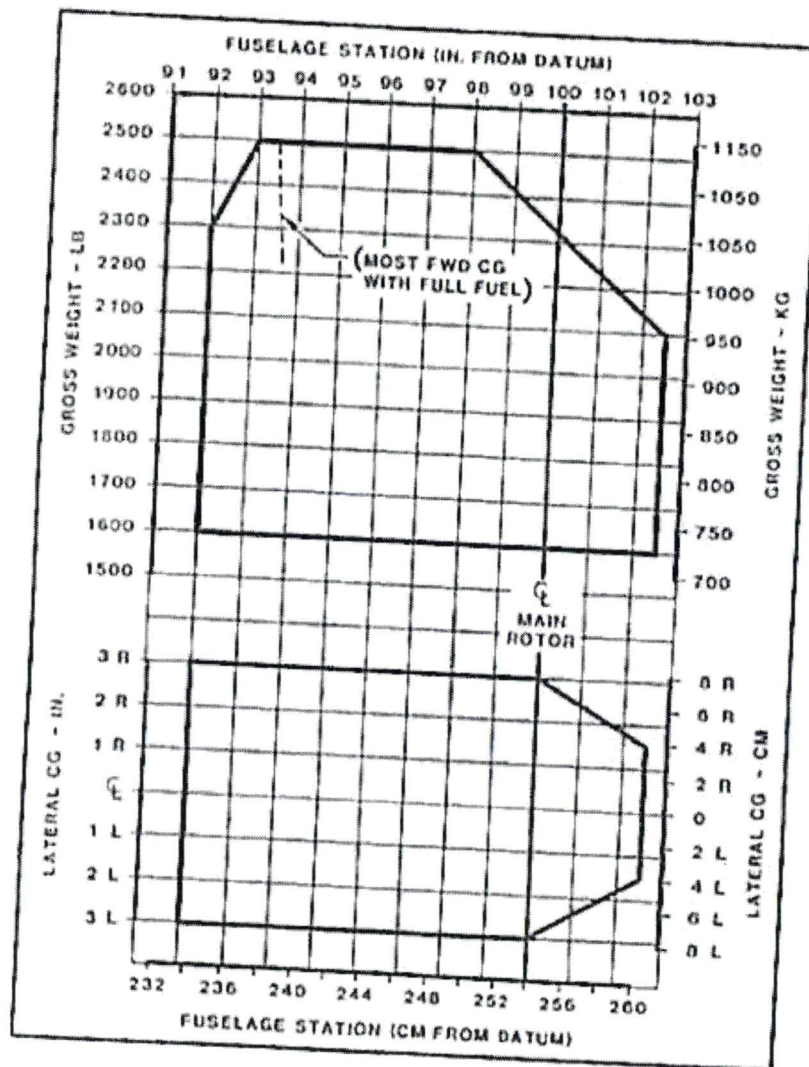
2



try to fit 48" mesh  
slope front if needed  
to clear door







CENTER OF GRAVITY LIMITS

FLIGHT AND MANEUVER LIMITATIONS (cont'd)

**CAUTION**

Avoid abrupt control inputs. They produce high fatigue stresses and could lead to a premature and catastrophic failure of a critical component.

**KINDS OF OPERATION LIMITATIONS**

VFR day is approved.

VFR operation at night is permitted only when landing, navigation, instrument, and anti-collision lights are operational. Orientation during night flight must be maintained by visual reference to ground objects illuminated solely by lights on the ground or adequate celestial illumination.

Note: There may be additional requirements in countries outside the U.S.

**FUEL LIMITATIONS**

Approved Fuel Grades:

100LL grade aviation fuel

100/130 grade aviation fuel

Fuel Capacity:

Main tank total capacity: 31.6 US gallons (120 liters)

Main tank usable capacity: 30.6 US gallons (116 liters)

Aux tank total capacity: 18.5 US gallons (70 liters)

Aux tank usable capacity: 18.3 US gallons (69 liters)

**ROBINSON  
MODEL R44 II**

**SECTION 6  
WEIGHT AND BALANCE**

The following table may be used when determining loaded helicopter weight and CG position.

Item	Weight (lb)	Longitudinal CG, inches	Lat CG, inches (+ = right side)
Pilot (right forward seat)		49.5*	+ 12.2
Left forward passenger		49.5*	- 10.4
Baggage under forward seats		44.0	± 11.5
Aft passengers and baggage under aft seats		79.5	± 12.2
Main fuel		106.0	- 13.5
Aux fuel		102.0	+ 13.0
Forward doors	7.5 each	49.4	± 24.0
Aft doors	7.0 each	75.4	± 23.0
Removable cyclic	0.6	35.8	- 8.0
Removable collective	0.8	47.0	- 21.0
Removable pedals (both pedals)	0.8	16.8	- 9.5

\*If backrest cushion is used, subtract thickness of compressed cushion.



Madonna Helicopters LTD  
Weight and Balance Amendment

Aircraft: R44 II Reg'n: C-GJRO Serial #: 11333

Amendment No: 1

Purpose: To install First Aid Kit

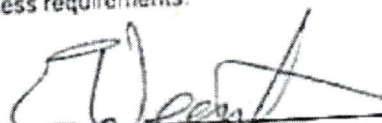
From Original 08 JUNE 2006

	Weight	Horizontal	
		Arm	Moment
Empty Weight Configuration	1510.75	107.30	162142.00
As Weighed			
ADD:			
First Aid Kit AOSH Type A	3.00	49.50	148.50
Empty Weight	1513.75	107.21	162290.50

Lateral	
Arm	Moment
0.10	151.00
12.20	36.60
0.12	187.60

The described maintenance has been performed in accordance with  
the applicable Airworthiness requirements.

27-Jul-06  
Date

  
Signature and Licence Number



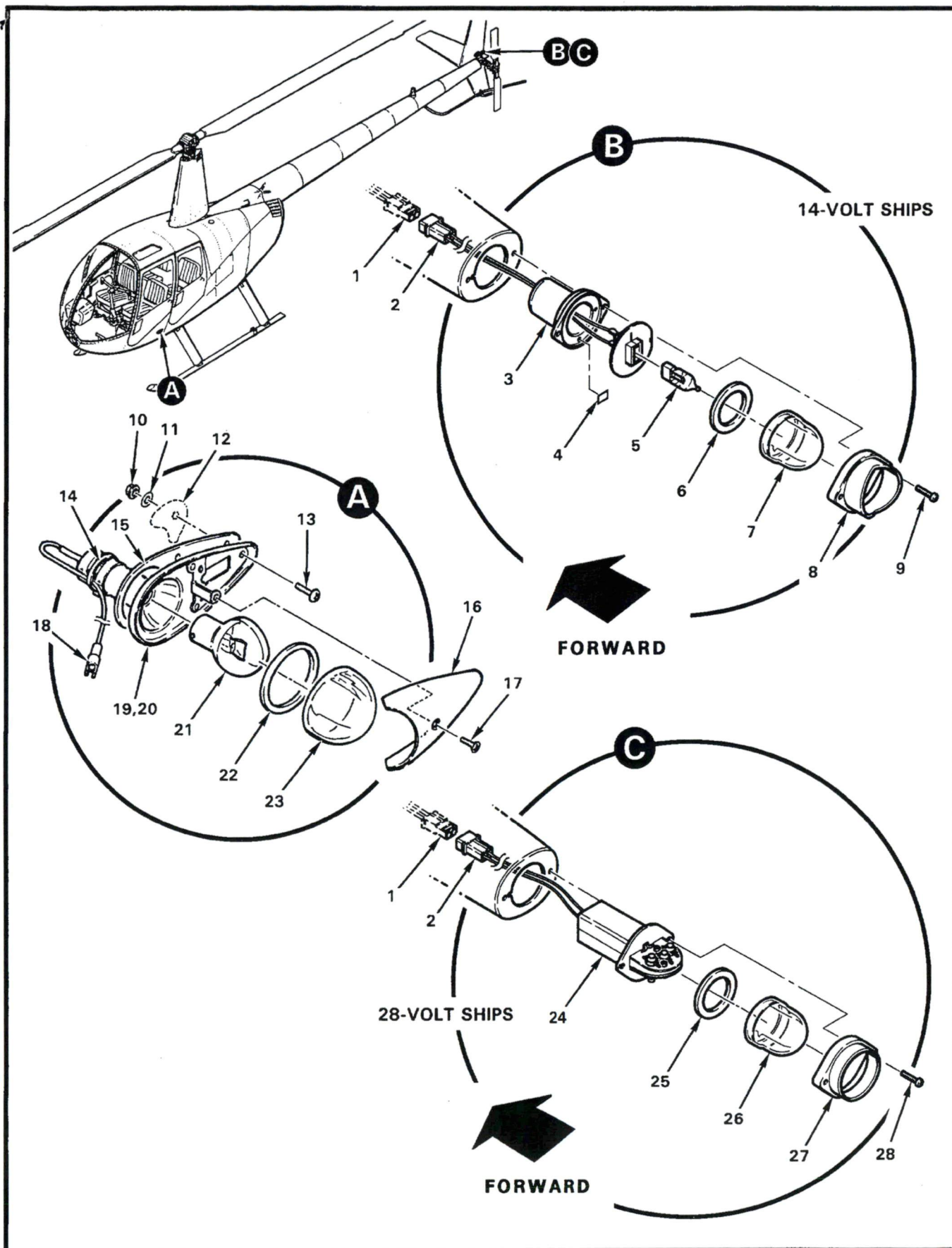


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	USABLE ON CODE	QTY PER ASSY
		NAVIGATION LIGHTS INSTALLATION			
8-29-1	D049-3	Wire Harness Assembly (Ref; see Figure 2-9)			
2	-	Housing . . . . .	O		1
3	A698-3	Tail Light Assembly (Incandescent, 14-volt ships. Includes items 2, and 4 thru 9; replacement for A698-2, also order item 1.) . . . . .	X		1
4	A701-1	Foil Tape . . . . .	X		A/R
5	34-0412070-63*	Lamp (halogen, 14-volt ships; alternate part no. A508-14)	X		1
	34-0428070-64*	Lamp (halogen, 28-volt ships; alternate part no. A508-28V)	X		1
6	A455*	Gasket . . . . .	X		1
7	A457A*	Lens . . . . .	X		1
8	A425*	Lens Retainer . . . . .	X		1
9	-	Screw . . . . .	O		2
10	MS21042L06	Nut . . . . .	O		3
11	NAS1149FN616P	Washer . . . . .	X		3
12	C272	Chin Assembly (Ref)			
13	MS35206-230	Screw . . . . .	X		3
14	MS3367-4-9	Ty-Rap . . . . .	X		1
15	A779-1	Gasket . . . . .	X		1
16	W1282*	Lens Retainer . . . . .	O		1
17	-	Screw . . . . .	O		1
18	B263-10	Housing . . . . .	X		1
	B263-1	Pin . . . . .	X		1
19	A039-5	Position Light Assembly - RH (green lens; includes items 16 thru 18, and 21 thru 23; not shown) . . . . .	X		1
20	A039-4	Position Light Assembly - LH (red lens; includes items 16 thru 18, and 21 thru 23) . . . . .	X		1
21	W1290-14*	Lamp (14-volt ships) . . . . .	X		1
	W1290-28*	Lamp (28-volt ships) . . . . .	X		1
22	-	Gasket . . . . .	O		1
23	W1284G*	Lens - RH (green) . . . . .	X		1
	D369-2	Lens - RH (green, not shown**) . . . . .	X		1
	W1284R*	Lens - LH (red, not shown) . . . . .	X		1
	D369-1	Lens - LH (red, not shown**) . . . . .	X		1
		*Whelen part no.			
		**For Pop-Out Float ships, see Figure 11-9. (Cont'd)			



FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	USABLE ON CODE	QTY PER ASSY
		NAVIGATION LIGHTS INSTALLATION (Cont'd)			
8-29-24	01-0771011-03*	Tail Light Assembly (LED, 28-volt ships. Includes items 2, and 25 thru 28) . . . . .	X		1
25	38-0231061-00*	Gasket . . . . .	O		1
26	68-3970991-30*	Lens . . . . .	O		1
27	19-0150350-03*	Lens Retainer . . . . .	O		1
28	14-0050505-18*	Screw . . . . .	O		1
		*Whelen part no.			

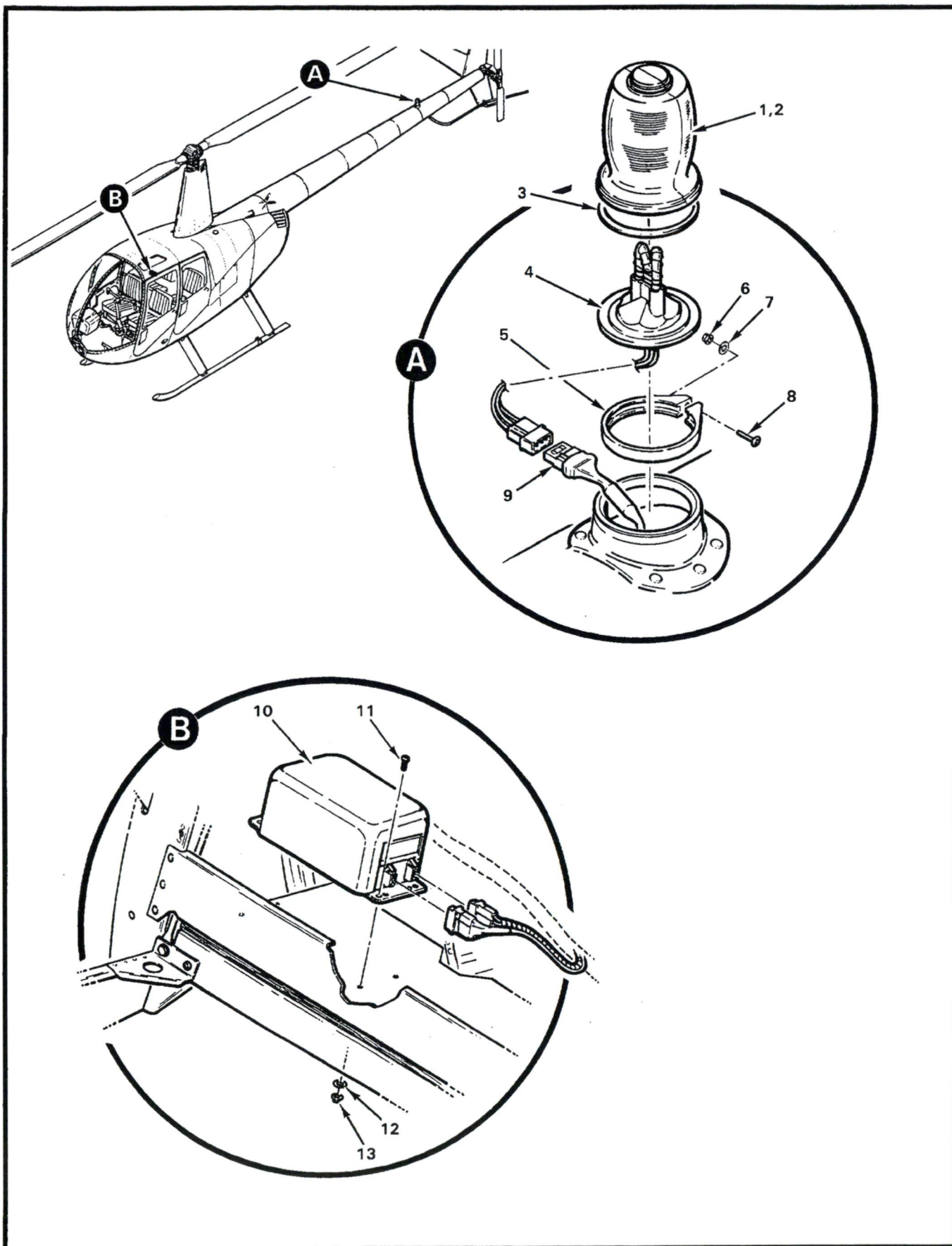
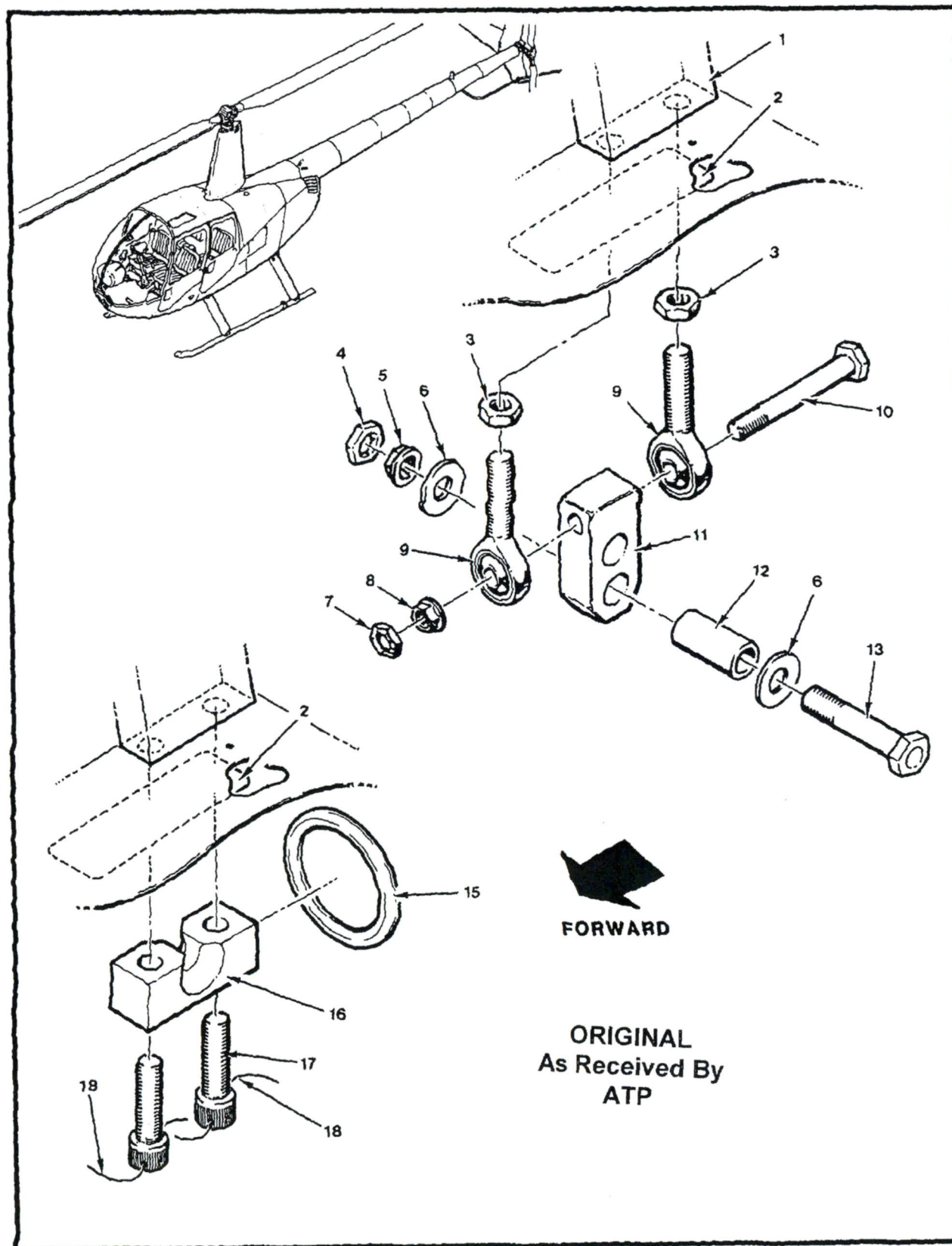


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	USABLE ON CODE	QTY PER ASSY
		STROBE LIGHT INSTALLATION			
8-31-1	A708-2	Strobe Light Assembly (Incl items 2 [A708-7], 3 [A467] thru 5, and 8) . . . . .	X		1
	A708-11	Strobe Light Assembly (Incl items 2 [A708-12], 3 [A467A] thru 5, and 8) . . . . .	X		1
2	A708-7	Lens Assembly (red) . . . . .	X		1
	A708-12	Lens Assembly (red and white) . . . . .	X		1
3	A467*	Gasket (use with A708-2 assembly) . . . . .	X		1
	A467A*	Gasket (use with A708-11 assembly) . . . . .	X		1
4	A469B*	Flash Tube Assembly . . . . .	X		1
5	01-0450685-00*	Clamp . . . . .	X		1
6	MS21042L06	Nut . . . . .	X		1
7	NAS620-6	Washer . . . . .	X		1
8	-	Screw . . . . .	O		1
9	B263-15	Housing (Ref; see Figure 2-7)			
10	A708-1	Strobe Power Supply . . . . .	X		1
11	MS27039C0806	Screw . . . . .	X		4
12	NAS1149FN816P	Washer . . . . .	X		4
13	MS21042L08	Nut . . . . .	X		4
		*Whelen part no.			



**ROBINSON ILLUSTRATED PARTS CATALOG**

**MODEL R44**



9-2

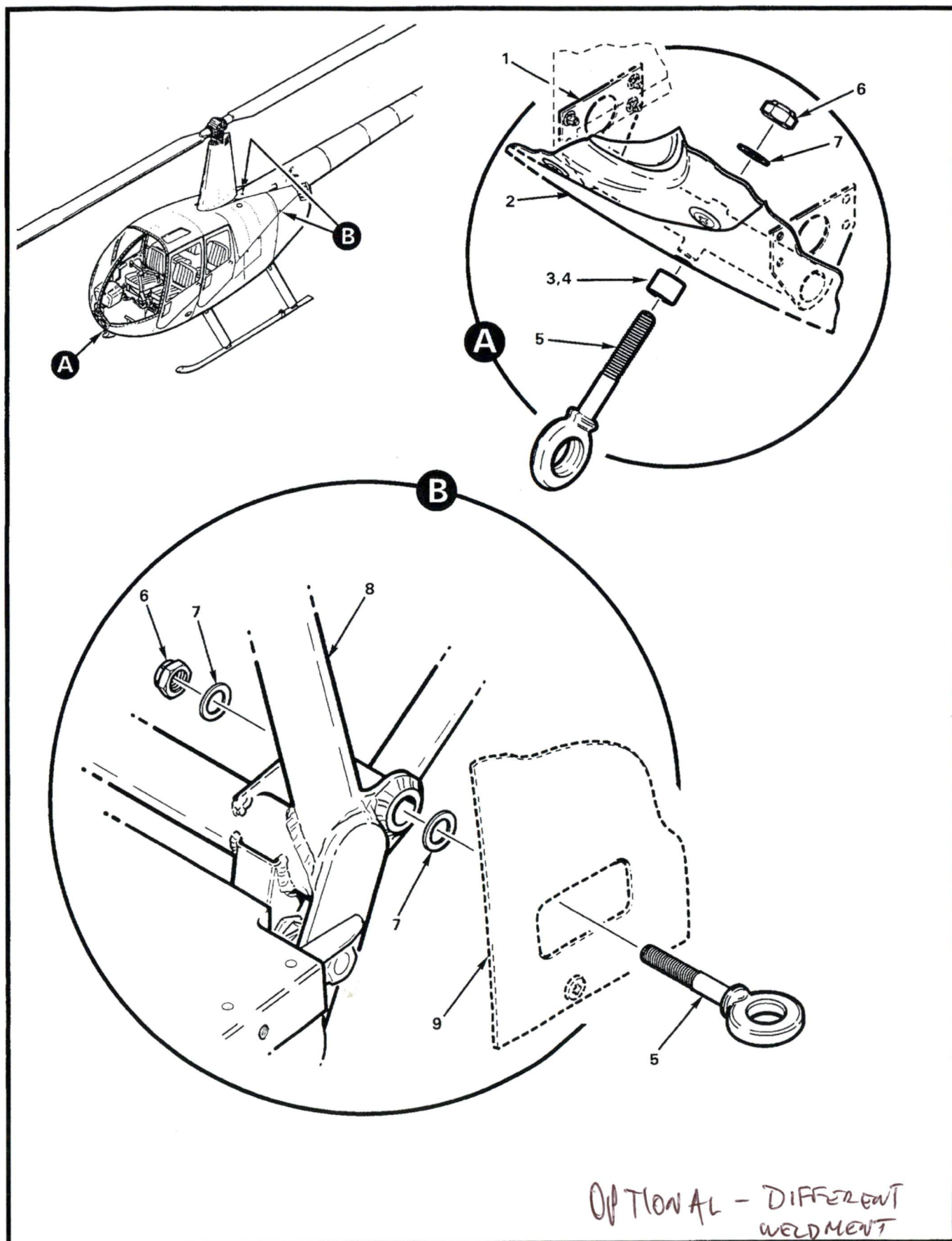
**FIGURE 9-3 HARDPOINT HINGE AND TIE-DOWN RING INSTALLATIONS**

Issued: JUL 2008

# ROBINSON ILLUSTRATED PARTS CATALOG

MODEL R44

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	USABLE ON CODE	QTY PER ASSY
		HARDPOINT HINGE AND TIE-DOWN RING INSTALLATIONS			
9-3-1	D134-1	Block (Ref)			
2	C654-9	Decal . . . . .	X		1
3	AN316-6R	Nut . . . . .	X		2
4	B330-19	Palnut . . . . .	X		1
5	MS21042L6	Nut . . . . .	X		1
6	A214-1	Washer . . . . .	X		2
7	B330-16	Palnut . . . . .	X		1
8	MS21042L5	Nut . . . . .	X		1
9	D173-1	Rod End . . . . .	X		2
10	NAS6605-26	Bolt . . . . .	X		1
11	D136-1	Support . . . . .	X		1
12	B139-1	Journal . . . . .	X		1
13	NAS6606-17	Bolt . . . . .	X		1
14	KI-86	Hardpoint Hinge Installation Kit (Incl items 2 thru 13)	X		1
15	3779T84	Ring . . . . .	X		1
16	B253-2	Anchor . . . . .	X		1
17	NAS1351-6H20P	Screw . . . . .	X		2
18	MS20995C-032	0.032 in. dia Safety Wire . . . . .	X		A/R





# ROBINSON ILLUSTRATED PARTS CATALOG

MODEL R44

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	USABLE ON CODE	QTY PER ASSY
		TIE-DOWN INSTALLATION			
9-43-1	D125-5	Weldment (Ref)			
2	C272	Chin (Ref)			
3	C130-38	Spacer (install using item 4) . . . . .	X		1
4	B270-1	Sealant (2-oz tube) . . . . .	X		A/R
5	A964-2	Eyebolt . . . . .	X		3
6	21FKF-616	Nut . . . . .	X		3
7	NAS1149F0632P	Washer . . . . .	X		5
8	C020-2	Frame Assembly - Upper (Ref)			
9	C706-3	Panel (LH, Ref)			
	D040-7	Door (RH, Ref; not shown)			



Transport  
Canada

Transports  
Canada

# Type Certificate Data Sheet

Number: H-97

Issue No.: 7

Approval Date: Refer Below

Issue Date: July 31, 2009

This data sheet, which is part of Type Certificate No. H-97, prescribes the conditions and limitations under which the product(s) for which the type certificate was granted meet(s) the standards of airworthiness required by the Canadian Aviation Regulations.

## Type Certificate Holder:

Robinson Helicopter Company  
2901 Airport Drive  
Torrance, California 90505

## Models

R44

R44 II

- |                        |                          |                               |
|------------------------|--------------------------|-------------------------------|
| 1. <u>Model R44</u>    | <u>(Normal Category)</u> | <u>Approved July 27, 1993</u> |
| 2. <u>Model R44 II</u> | <u>(Normal Category)</u> | <u>Approved May 30, 2003</u>  |

Except as otherwise noted below, the conditions and limitations prescribed by this data sheet are those specified in the FAA Type Certificate Data Sheet (TCDS) H11NM Revision 6, dated July 9, 2009. Subsequent revisions to the FAA TCDS are not applicable to Canadian registered aircraft. In addition the following requirements apply:

Basis of  
Certification

- 1) As per H11NM plus Canadian Airworthiness Manual Chapter 527 change 527-2, dated 1 February, 1992 for the following paragraphs:

527.1301-1	Rotorcraft operations after Ground Cold Soak
527.1557(c)(3)	Miscellaneous Markings and Placards
527.1583(h)	Operating Limitations - Ambient Temperature

- 2) The noise requirements of ICAO Annex 16, Volume 1, (Second Basis Edition dated 1988), Chapter 11.

Approved  
Publications

### R44

Rotorcraft Flight Manual as specified in H11NM in addition to FAA Approved R44 Pilot's Operating Handbook Canadian Supplement dated May 28, 2003 or later approved revision.

### R44 II

Rotorcraft Flight Manual as specified in H11NM in addition to FAA Approved R44 II Pilot's Operating Handbook Canadian Supplement dated May 28, 2003 or later approved revision.



Transport  
Canada

Transports  
Canada

## *Type Certificate Data Sheet*

*(Continuation Sheet)*

Number: H-97 Issue: 7

### Import Requirements

The import documentation must include:

- a) A United States Export Certificate of Airworthiness to Canada signed by a representative of the Federal Aviation Administration (FAA);

or

- b) A Certificate of Airworthiness for Export signed by the Airworthiness Authority of a country with whom Canada has a Bilateral Airworthiness agreement.

In case a) or b) the C of A must contain the following statement:

"The aircraft identified by this certificate has been examined and found to conform to the Canadian Department of Transport Type Certificate H-97."

or

- c) Other procedures approved by the Minister of Transport.

- END -

J.D. Turnbull  
Chief, Project Management  
National Aircraft Certification  
for Minister of Transport



DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

H11NM  
Revision 6  
Robinson  
R44  
R44 II  
July 9, 2009

**TYPE CERTIFICATE DATA SHEET NO. H11NM**

This data sheet, which is a part of Type Certificate No. H11NM, prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder: Robinson Helicopter Company  
2901 Airport Drive  
Torrance, California 90505

**I. Model R44 (Normal Category Rotorcraft), Approved December 10, 1992**

Engine One Lycoming O-540-F1B5, Type Certificate number E-295

Fuel 100 LL minimum grade aviation gasoline  
100/130 minimum grade aviation gasoline

Engine Limits Maximum continuous: 205 hp at 2718 rpm (102%)  
Takeoff (5 minute): 225 hp at 2718 rpm (102%)

See R44 Rotorcraft Flight Manual (RTR 461) for maximum manifold pressure corresponding to horsepower rating.

Rotor Speed Limits

Power Off (Rotor Tach)	Power On (Rotor Tach)
Maximum: 432 rpm (108%)	Maximum: 408 rpm (102%)
Minimum: 360 rpm (90%)	Minimum: 396 rpm (99%)

Airspeed Limits

$V_{NE}$  (never exceed speed) at sea level is 130 KIAS (120 KIAS with fixed floats) for takeoff gross weights of 2200 lbs. or less.  $V_{NE}$  at sea level is 120 KIAS (110 KIAS with fixed floats) for takeoff gross weights over 2200 lbs.

Power Off (Autorotation)  $V_{NE}$  at sea level is 100 KIAS.

For reduction of  $V_{NE}$  with altitude and temperature, see R44 Rotorcraft Flight Manual (RTR 461).

Airspeed limit at power settings above Maximum Continuous Power is 100 KIAS.

Airspeed limit with inflated pop-out floats is 80 KIAS.

Airspeed limit for any combination of Doors Off is 100 KIAS.

Page No.	1	2	3	4	5	6
Rev. No.	6	6	5	6	5	5



**I. Model R44 (Normal Category Rotorcraft), Approved December 10, 1992, (cont'd)**

**Equipment** The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. In addition, the following FAA-approved Rotorcraft Flight Manual is required:

R44 Rotorcraft Flight Manual (RTR 461) dated December 10, 1992, or later revision (See NOTES 4, 5, & 6).

**II. Model R44 II (Normal Category Rotorcraft), Approved October 3, 2002**

The R44 II helicopter includes a fuel injected engine with a 245 hp takeoff rating and a maximum weight of 2500 lb.

**Engine** One Lycoming IO-540-AE1A5, Type Certificate number 1E4

**Fuel** 100 LL minimum grade aviation gasoline  
100/130 minimum grade aviation gasoline

**Engine Limits** Maximum continuous: 205 hp at 2718 rpm (102%)  
Takeoff (5 minute): 245 hp at 2718 rpm (102%)

See R44 II Rotorcraft Flight Manual (RTR 462), dated October 3, 2002 or later FAA approved revision, for maximum manifold pressure corresponding to horsepower rating.

**Rotor Speed Limits**

Power Off (Rotor Tach)	Power On (Rotor Tach)
Maximum: 432 rpm (108%)	Maximum: 408 rpm (102%)
Minimum: 360 rpm (90%)	Minimum: 404 rpm (101%)

**Airspeed Limits**

$V_{NE}$  (never exceed speed) at sea level is 130 KIAS (120 KIAS with fixed floats) for takeoff gross weights of 2200 lbs. or less.  $V_{NE}$  at sea level is 120 KIAS (110 KIAS with fixed floats) for takeoff gross weights over 2200 lbs.

Power Off (Autorotation)  $V_{NE}$  at sea level is 100 KIAS.

For reduction of  $V_{NE}$  with altitude and temperature, see R44 II Rotorcraft Flight Manual (RTR 462) dated October 3, 2002, or later FAA approved revision.

Airspeed limit at power settings above Maximum Continuous Power is 100 KIAS.

Airspeed limit with inflated pop-out floats is 80 KIAS.

Airspeed limit for any combination of Doors Off is 100 KIAS.

**Center of Gravity (C.G.) Range**

Longitudinal C.G. Range			Lateral C.G. Range		
Gross Weight (lbs.)	Forward (in.)	Aft (in.)	Long. C. G. (in.)	Left (in.)	Right (in.)
1600	92.0	102.5	92.0	-3.0	+3.0
2100	92.0	102.5	100.0	-3.0	+3.0
2300	92.0	100.25	102.5	-1.5	+1.5
2500	93.0	98.0			

Note: Straight line variation between points shown

**Empty Weight C.G. Range**

Calculated C.G. with 150 lb. pilot and full fuel must be STA 102.5 or forward.



**II. Model R44 II (Normal Category Rotorcraft), Approved October 3, 2002, (cont'd)**

Maximum Weight 2500 lb.  
2400 lb. for intentional water landings with fixed or pop-out floats.

Minimum Crew 1 pilot in forward right seat.

Number of Seats 4 (3 for Police and ENG Versions)  
Seat Locations: Pilot and Forward Passenger at STA 49.5  
Aft Passengers at STA 79.5

Maximum Baggage 50 pounds of baggage and installed equipment in any baggage compartment. For any seat location, the maximum combined weight of the seat load, baggage, and installed equipment is 300 lbs.

Fuel Capacity

Tank	Tanks Without Bladders		Tanks With Bladders		Location (STA)
	Capacity (gal.)	Usable (gal.)	Capacity (gal.)	Usable (gal.)	
Main	31.6	30.6	30.5	29.5	106.0
Auxiliary	18.5	18.3	17.2	17.0	102.0

Oil Capacity

Component	Capacity (qt.)	Location (STA)
Engine	9	110.0
Main Rotor Transmission	2	100.0
Tail Rotor Transmission	0.11	327.0
Hydraulic Reservoir	0.65	117.0

Maximum Operation Altitude Density Altitude Limit - 14,000 ft.  
Maximum altitude above ground level is 9000 ft. to allow landing within 5 minutes in case of fire.

Manufacturer's Serial Numbers 1140, 10001 and subsequent

Certification Basis 14 CFR Part 27, dated February 1, 1965, including Amendments 27-1 through 27-24, and Exemption No. 6692 dated October 17, 1997 to §27.695.

14 CFR Part 36 Amendment 36-24.

Equivalent Safety Finding:

Number TD10352LA-R/S-1

14CFR Part 27.1401(d), Anticollision Light System

→ Power boost/power operated control systems

→ Colour?

Equipment The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. In addition, the following FAA-approved Rotorcraft Flight Manual is required:

R44 II Rotorcraft Flight Manual (RTR 462) dated October 3, 2002, or later revision (See NOTES 7 & 8).

DATA PERTINENT TO BOTH MODELS

Datum 100 in. forward of main rotor centerline.

Leveling Means Refer to the R44 Maintenance Manual and Instructions for Continued Airworthiness (RTR 460).

Rotor Blade and  
Control MovementsMain Rotor blade angles at 75% radius:Collective Pitch:  $12.5^{\circ} \pm 1.0^{\circ}$  total travel

Note: Collective low pitch to be established in accordance with the Maintenance Manual and Instructions for Continued Airworthiness (RTR 460) procedures to obtain proper autorotation RPM.

Cyclic Pitch:	Forward	$13.50^{\circ}$ to $14.25^{\circ}$
	Aft	$13.50^{\circ}$ to $14.25^{\circ}$
	Left	$7.5^{\circ}$ to $8.5^{\circ}$
	Right	$6.0^{\circ}$ to $7.0^{\circ}$

Tail Rotor blade angles at 75% radius:

Collective Pitch:	Thrust to left	$15.5^{\circ}$ to $16.5^{\circ}$
	Thrust to right	$18.5^{\circ}$ to $19.0^{\circ}$

## Production Basis

Production Certificate No. 424WE dated February 11, 1993.

## GENERAL NOTES

- NOTE 1. A current weight and balance report, including a list of equipment included in the certificated empty weight, and loading instructions when necessary, must be provided for each aircraft at the time of original airworthiness certification and at all times thereafter, except in the case of operators having an approved weight control system.
- NOTE 2. The following placard must be installed in clear view of the pilot:  
"THIS ROTORCRAFT APPROVED FOR DAY AND NIGHT VFR OPERATIONS"
- For additional placards, see the Rotorcraft Flight Manual. All placards required in the FAA-approved Rotorcraft Flight Manual must be installed in the appropriate locations.
- NOTE 3. Information essential to the proper maintenance of the helicopter, including retirement time of critical components, is contained in the Robinson R44 Maintenance Manual and Instructions For Continued Airworthiness (RTR 460). Retirement times are listed in the FAA-approved "AIRWORTHINESS LIMITATIONS" section. The values of retirement or service life and inspection intervals cannot be changed without FAA Engineering approval.
- NOTE 4. R44 Rotorcraft Flight Manual Supplement 5 dated July 17, 1996, or later FAA-approved revision is required when float landing gear is installed.
- NOTE 5. R44 Rotorcraft Flight Manual Supplement 10 dated June 10, 1999, or later FAA-approved revision is required when emergency (pop-out) floats are installed.
- NOTE 6. R44 Rotorcraft Flight Manual with FAA-approved revisions through November 5, 1999, or later FAA-approved revision is required when hydraulically-assisted main rotor flight controls are installed.
- NOTE 7. R44 II Rotorcraft Flight Manual Fixed Floats Supplement dated October 3, 2002, or later FAA-approved revision is required when fixed-float landing gear is installed.
- NOTE 8. R44 II Rotorcraft Flight Manual Pop-Out Floats Supplement dated October 3, 2002, or later FAA-approved revision is required when pop-out floats are installed.

NOTE 9.

Any changes to the type design of this helicopter by means of an amended type certificate (TC), supplemental type certificate (STC), or amended STC, requiring instructions for continued airworthiness (ICA's) must be submitted through the project aircraft certification office (ACO) for review and acceptance by the Fort Worth-Aircraft Evaluation Group (FTW-AEG) Flight Standards District Office (FSDO) prior to the aircraft delivery, or upon issuance of the first standard airworthiness certificate for the affected aircraft, whichever occurs later as prescribed by Title 14 CFR 21.50. Type design changes (major repairs or alterations) by means of a FAA Form 337 (field approval) that require ICA's must have those ICA's reviewed by the field approving FSDO.

END